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HMX: 13 Week Toxicity Study in Mice by Dietary Administration

Final Report by:

D.J. Everett
S.M. Maddock

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Abstract

Mice were fed diets containing HMX for 13 weeks. Dose levels for males were 0, 5, 12, 30, 75 or 200 mg HMX/kg/day. Female mice received 0, 10, 30, 90, 250 or 750 mg HMX/kg/day.

Mortalities attributable to HMX at 200 mg HMX/kg/day amongst males and at 250 and 750 mg HMX/kg/day amongst females. Occasional deaths at lower dose levels were of uncertain aetiology.

No marked effects on body weight were noted although food consumption was reduced amongst higher dosed males and females.

There were slight but equivocal changes in haematological and clinical chemical observations.

Neither gross autopsy nor histopathology revealed any findings likely to be associated with the administration of HMX.

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FOREWORD

"I, the undersigned, hereby declare that this work was performed under my supervision, according to the procedures herein described and that this report represents a true and accurate record of the results obtained."

A.B. Wilson, B.V.Sc., M.R.C.V.S.,
D.A.B.T.
Principal Investigator

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The title on the front cover is correct for this report.
Per Ms. Virginia Miller, AMR&DC

Project No. 416877

Report No. 2195

QUALITY INSPECTED 4

QUALITY ASSURANCE AUTHENTICATION

The conduct of this study has been subjected to periodic inspections by the IRI Quality Assurance Unit. The dates of inspection are given below.

IRI Project No. 416877 — Report No. 2195

Date of Q.A. Inspection	Date of Report to Management
19 January 1981	19 January 1981
13 February 1981	17 February 1981
27 February 1981	27 February 1981
7-13 April 1981	13 April 1981
23 April 1981	24 April 1981

This report has been audited by the Quality Assurance Personnel according to the appropriate Standard Operating Procedure. The report is considered to describe accurately the methods and procedures used in the study and the original data generated during the study.

Signed: Andrew Waddell (Quality Assurance Manager)

Date: 3rd March 1986.

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SUMMARY

The objective of this study was to obtain information on the toxic effect of Octahydro-1,3,5,7,tetranitro-1,3,5,7-tetrazocine (HMX) when administered via the diet for 13 weeks.

Five groups of 20 male B6C3F1 mice were dosed with concentrations of HMX in diet to give dose levels of 5, 12, 30, 75 or 200 mg/kg/day for at least 95 days. Five groups of 20 female B6C3F1 mice were similarly dosed at levels of 10, 30, 90, 250 or 750 mg HMX/kg/day. In addition 20 male and 20 female mice received untreated diet and acted as controls.

All animals which died or were killed in extremis were necropsied. All surviving animals were killed and necropsied after completion of 13 weeks of treatment.

The results can be summarised as follows:-

Mortality:

	Males mg HMX/kg/day						Females mg HMX/kg/day					
	0	5	12	30	75	200	0	10	30	90	250	750
No. of Deaths	0	0	0	1	2	13	1	0	1	0	12	20
% Mortality	0	0	0	5	10	65	5	0	5	0	60	100

Clinical Signs: Possible slight increase in excitability in top dose males and females, largely masked by general excitability of B6C3F1 mice.

Body Weight: No marked effect on body weight was noted in either sex.

Food Consumption: Reduced food consumption in male mice receiving 75 or 200 mg HMX/kg/day and in female mice receiving 750 mg HMX/kg/day.

Water Consumption: No intergroup differences in water consumption were noted.

Achieved Dosage: This was considered to fall within acceptable limits.

Ophthalmoscopy:	No lesions were seen which could be attributed to dosing with HMX.

Laboratory Investigations

Haematology:	No dose-related trends were noted in male mice. A slight reduction in haemoglobin concentration and slight increases in white blood cell and lymphocyte counts were seen in female mice receiving HMX.
Clinical Chemistry:	Glucose concentration, alanine amino-transferase and alkaline phosphatase values were all slightly depressed in male mice receiving HMX. Female mice receiving HMX also showed a slight depression in alkaline phosphatase levels.
Urinalysis:	Male mice receiving HMX produced slightly more acidic urine of lower specific gravity than controls. Female mice receiving HMX produced urine of slightly higher specific gravity than controls.

Terminal Studies

Organ Weights:	A slight increase in the absolute and relative brain weights of male mice receiving HMX was noted. Female mice receiving HMX also showed a slight increase in absolute brain weight compared with controls. Absolute and relative spleen weights were slightly reduced in female mice receiving HMX.
Gross and Histo-pathology:	There were no dose related findings.

INTRODUCTION

Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX) is found in the waste-water effluent as a byproduct in production of the high explosive RDX. This 13 week dietary study in mice forms part of a series of animal toxicity, pharmacokinetic and metabolic studies intended to evaluate the toxicity of HMX.

The experiment was undertaken at the Elphinstone Research Centre of Inveresk Research International Limited, within the Modular Animal Maintenance System (MAMS) complex. It was started on 16 January 1981 and necropsies were completed on 23 April 1981.

The Sponsor for this work was US Army Medical Research and Development Command.

All data generated and recorded during this study will be stored in the Scientific Archives of Inveresk Research International Limited.

MATERIALS AND METHODS

Test Substance

A total of 14.9 kg (dry weight) of HMX was received from the Royal Ordanance Factory, Somerset, via Nobels Explosive Company, Stevenson over the period 27 June 1980 to 2 February 1981. The test compound was supplied wetted with 15.25% water and was a grey paste. Prior to use, individual 50 g lots were dried in a water jacketed oven at 85-90°C until constant dry weight was achieved. The white powder obtained from this process was sieved through a nylon mesh before use.

Methods

Design Conditions

Animals

Three hundred and twenty six B6C3F1 mice, divided equally by sex were obtained from Charles River Limited, Wilmington, Massachusetts, U.S.A. on 7 January 1981. They were ordered in the weight range 12-15 g on arrival.

One hundred and forty males and 140 females were allocated to treatment groups and were allowed 9 days acclimatisation before treatment began. One male and 2 females were replaced before treatment began and the excess animals discarded when dosing started.

Animal Receipt and Acclimatisation Procedures

The assessment of animal health status and suitability for use on study occurred in 2 stages:

(a) Shortly after arrival, 10 animals/sex were subjected to pre-experiment acceptance tests (PEAT). PEAT involved a clinical examination, necropsy, histopathological examination of major organs and evaluation of bacterial and parasitic status.

Animals were selected for PEAT firstly on the basis of clinical examination and secondly at random.

(b) Upon arrival and throughout the 9 day acclimatisation period animals were assessed for signs of disease. Animals suspected of being diseased were culled from the study and necropsy carried out. During this time 3 animals were replaced.

Housing

Mice were housed in a barrier maintained animal room at a room temperature normally of 21°C ± 2°C and a relative humidity of generally between 40% and 70% (both automatically controlled), with circa 14 air changes/h. A 12 h light/dark cycle was controlled by a time switch, light hours being 0700-1900 h. Continuous monitoring of temperature and humidity was by thermohygrograph. Room location was at Elphinstone Research Centre within the MAMS complex.

Caging and Cage Sanitation

Mice were housed one animal per cage in suspended polypropylene cages (overall dimensions 480 x 150 x 130 mm) with stainless steel wire grid tops. Bedding was white wood shavings.

Cages were changed at least once each week. Each cage had a polypropylene water bottle (total capacity 300 ml) with rubber washer and melamine cap.

Diet and Water

During the course of the study tap water and a laboratory rodent diet (BP Nutrition (U.K. Limited) Expanded Ground Maintenance Diet) were available to the mice ad libitum. Typical analyses for both diet and water are presented in Appendices 1 and 2.

Animal Room Sanitation

Each morning, before other work in the room began, floors were mopped with a disinfectant solution (either 1% Tego from T.H. Goldschmidt and Company Limited or 3% Hycogen from Hy-co Products (Scotland) Limited). Each afternoon, following completion of all other work, floors were swept then washed with a disinfectant solution. Once each week, walls, ceiling, benches and racking within the animal room were washed with a disinfectant solution.

Distribution of Animals into Treatment Groups

On the day of arrival, the mice were distributed at random into the treatment groups as follows:

> Upon receipt the mice were divided into 3 body weight ranges and placed into large holding cages. The cages to be used during the experiment were set up on racks and divided into sequences of 7 cages. A set of random numbers was used to assign a male of

the lowest weight range to the first cage of a designated sequence. When all animals from the lowest weight range had been allocated the highest weight range of males was used, followed by the middle weight range.

When the first cage of every sequence contained a mouse the process was continued using the second cages. This procedure was followed until 140 cages contained one male mouse. The process was then repeated using female mice and new cages.

Each mouse was ascribed a treatment group by the use of another set of computer generated random number sequences. Thus any intergroup environmental differences were minimised.

Animal Identication

Each mouse was given a unique earmark which identified it within the study and corresponded to that animal's study number.

Route and Duration of Treatment

The test compound was administered orally via the diet for a minimum of 95 consecutive days.

Dose Levels, Treatment and Groups and Animal Numbers

The dose levels ascribed to each treatment group and animal number at the start of the treatment period were as follows:

Group	Dose Level (mg HMX/kg/day)		Animal Numbers	
	Males	Females	Males	Females
1	0	0	1-20	121-140
2	5	10	21-35	141-160
			366*	
			37-40	
3	12	30	41-60	161-173
				374*
				175-180
4	30	90	61-80	181-200
5	75	250	81-100	201-220
6	200	750	101-120	221-240
7	0	0	241-260	261-263
				364*
				265-280

* = Numbers 36, 174 and 264 were replaced by numbers 336, 374 and 364 respectively before treatment began.

Animals in Group 7 were intended to add to the background data available only on the clinical pathology of B6C3F1 mice as this was limited at IRI. Results obtained from these investigations are not included in this report.

Preparation of Test Diets

Fresh diets were prepared once each week. The concentration of test compound was adjusted each week to give as constant mg/kg/day dose level as possible by prediction of the mid-week body weight and weekly food consumption for the week in question. Diets were prepared by direct admixture of the requisite amount of HMX to untreated diet and blending for 20 min in a Winkworth Change Drum Tumble Mixer.

Dietary Sampling

A 100 g sample of diet from each group/sex was taken and retained immediately after diet preparation at the start of each week. These samples form part of the study archives. In addition, 3 samples each of 10 g were taken from each group/sex receiving HMX at the beginning of weeks 1, 2, 3, 4, 7, 10 and 13. These samples, together with 3 samples of 100 g control diet each sampling, were analysed at IRI.

Observations

Clinical Signs

All animals were checked early morning and later afternoon on each day for dead or moribund animals. The onset and duration of all signs of ill health or reaction to treatment were recorded after daily examination of the animals. Each animal was given a detailed physical examination for clinical signs or external lesions once a week.

Deaths

Animals dying during the study were given a detailed macroscopic examination and tissues listed under 'Post Mortem Studies' were preserved.

Body Weight

The weight of each animal was recorded at weekly intervals commencing one week before the start of treatment up until the end of treatment. In addition, body weight recording was carried out on Day 4 of each of the first 4 study weeks.

Food Consumption

The quantity of food consumed by each animal was recorded once each week commencing one week before the start of treatment and up to the end of 13 weeks dosing. The amount of food scattered by each animal was recorded.

Water Consumption

Water consumption was assessed by visual inspection of the water bottles for any intergroup differences.

Ophthalmic Examination

Ophthalmic examinations were carried out on all animals using an indirect ophthalmoscope before dosing commenced and during Week 13 of dosing.

Laboratory Investigations

Haematology

Blood was taken from the orbital sinus of mice lightly anaesthetised with ether during Week 12 of dosing. Ten mice were selected by computer generated random numbers from each group at the following mg HMX/kg/day dose levels: 0♂, 30♂, 75♂, 200♂, 0♀, 30♀, 90♀, 250♀, 750♀ (survivors were used where less than 10).

The following measurements were carried out on whole blood taken into E.D.T.A.:

Red cell count
White cell count
Packed cell volume
Haemoglobin concentration
Differential white cell count
Reticulocyte count
Heinz bodies

Hepato Quick tests were carried out using blood obtained by tail snip without anaesthesia.

Clinical Chemistry

Blood was collected from the vena cava at termination from the same mice bled for haematology. The following measurements were carried out on plasma taken from whole blood collected in heparin.

1. Asparate aminotransferase (GOT)
2. Alanine aminotransferase (GPT)
3. Alkaline phosphatase (AP)
4. Lactate dehydrogenase (LDH)
5. Blood urea nitrogen
6. Glucose
7. Albumin
8. Sodium
9. Potassium
10. Protein

Samples of plasma were kept at circa 4°C and assays carried out within 24 h of sampling on those parameters which may have proved unstable if retained for longer. If insufficient sample was obtained for all assays to be carried out, preference was given in the numbered order.

Urinalysis

Collection of individual urine samples were made from the same animals used for the haematology bleed, after dosing the mice with 0.5 ml of distilled water. The collection was over a 4 h period of food and water deprivation during Week 13 of dosing.

The following measurements were carried out:-

Glucose
Blood
Volume
Protein
Ketones
Bile pigments
Colour
pH
Specific gravity
Microscopic examination of the spun deposit.

Pharmacokinetic Sampling

During the terminal necropsies blood samples and stomach contents were taken from 5 mice selected at random from each group where possible. It was necessary with female animals receiving 250 mg HMX/kg/day to retain any excess sample remaining after completion of clinical chemistry analyses due to the low survival rate.

Whole blood was taken into heparin and the plasma deep frozen after separation by centrifugation from the red cells. Stomach contents were taken into glass bottles and deep frozen.

Termination

All animals which died or were killed were necropsied. The gross dissection and evaluation was performed by or under the supervision of the pathologist allocated to the experiment. The necropsy was defined as external examination, including body orifices and examination and fixation of all the following tissues.

Adipose tissue (perirenal)	Mesenteric lymph node
Adrenals	Nasal turbinate
Aorta	Ovaries
Bladder	Pancreas
Brain	Parathyroids
Bronchial lymph node	Pituitary
Caecum	Prostate
Colon	Rectum
Duodenum	Salivary gland (submaxillary)
Eyes	Sciatic nerve
Fallopian tubes	Skin (abdominal)
Femoral bone smear	Spinal cord
Gross lesions	Spleen
Heart	Sternebrae, (plus marrow)
Ileum	Stomach
Jejunum	Submaxillary lymph node
Kidneys	Testes
Liver	Thigh muscle
Lumbar, sacral and dorsal ganglia	Thymus
	Thyroids
Lungs	Trachea
Mammary gland	Uterus

Femoral bone marrow smears were prepared from all animals at death, air-dried and fixed in absolute methanol for at least 5 min.

All tissues and/or organs were examined in situ, then dissected from the carcass, re-examined, including cut surfaces, and fixed in 10% neutral buffered formalin (except eyes which were preserved in Davidson's fluid).

Lungs were fixed in their entirety after opening and examining the trachea and mainstem bronchi.

The calvarium was removed and the dorsal nasal bone removed for examination of nasal turbinates.

Other tissues were fixed after slicing to a thickness not exceeding 5 mm.

Distended urinary bladders were opened and examined before fixation. Contracted, empty bladders were partially distended with formalin and opened and examined after fixation.

Liver lobes were sliced, the kidneys cut transversely and the cut surfaces examined before fixation.

The entire mucosal surfaces of the oesophagus, stomach, small and large intestines and rectum were opened and examined before fixation.

Several thoraco-lumbar vertebrae were fixed with the spinal cord in situ.

All gross lesions were recorded in narrative, descriptive terms, including location, size (in mm), number, shape, colour and texture.

Carcasses of animals were discarded immediately following autopsy and fixation of all tissues listed above.

Processing of Fixed Tissues

The fixation times were no less than 48 h and not more than 12 weeks.

Tissues were trimmed to a maximum thickness of 3 mm for processing.

Parenchymal organs, e.g. liver, were trimmed to allow the largest surface area possible for examination.

Mid-transverse sections through the entire cortex and medulla of each kidney were submitted.

Entire coronal (a transverse section parallel to the long axis of the body) sections of both right and left lungs including main-stem bronchi were submitted.

The spinal cord was sectioned in the thoraco-lumbar region.

Three cross sections of brain included (a) frontal cortex and basal ganglia, (b) parietal cortex and thalamus, and (c) cerebellum and pons.

Hollow organs were trimmed and blocked to allow a cross section slide from mucosa to serosa.

Histological Technique

Tissues were cut at 4-6 μm thickness and stained with haematoxylin and eosin (H & E).

Histopathological Examination

All male animals in the control group and those receiving 30 or 75 mg HMX/kg/day were examined histopathologically. Female control mice and those receiving 30 or 90 mg HMX/kg/day were similarly examined. In addition, the liver, kidneys, spleen and brain from all other animals were examined. At the Sponsor's request, groups showing extensive mortality were not examined histopathologically.

Histopathological examination was defined as histological examination of the following:

- Adrenals
- Aorta
- Bladder
- Brain (3 sections including frontal cortex and basal ganglia, parietal cortex and thalamus and cerebellum and pons)
- Bronchial lymph node
- Eyes
- Fallopian tubes (where possible)
- Gross lesions
- Heart
- Kidneys
- Large intestine (caecum, colon, rectum)
- Liver
- Lungs
- Mammary gland
- Mesenteric lymph node
- Muscle (thigh)
- Nares
- Oesophagus
- Ovaries
- Pancreas
- Perirenal fat
- Pituitary
- Prostate
- Salivary gland (submaxillary)
- Sciatic nerve
- Skin
- Small intestine (duodenum, jejunum, ileum)
- Spinal cord (thoracolumbar)
- Spleen
- Sternebrae (including marrow)
- Stomach (glandular and non-glandular)
- Submaxillary lymph nodes
- Testes
- Thymus
- Thyroids (with parathyroids where present on section)
- Trachea
- Uterus

Statistical Evaluation

Analysis of mortality was carried out using Fisher's exact probability test. Other parameters were investigated for statistically significant differences by the application of analysis of variance deriving t values from standard deviations. Males were treated independently of females. The level of probability chosen as significant was P 0.05, but the actual levels are reported.

RESULTS

Dosing commenced: 16 January 1981
Duration of dosing: 95 days minimum
Termination: 21-23 April 1981

Observations

Mortality

There were 50 premature decedents during the study, distributed as follows:

	Males Dose Level mg HMX/kg/day						Females Dose Level mg HMX/kg/day					
	0	5	12	30	75	200	0	10	30	90	250	750
No. of Deaths	0	0	0	1	2	13***	1	0	1	0	12**	20***

Asterisks indicate degree of significance in accordance with Fisher exact probability test.
** = $P<0.01$
*** = $P<0.001$

Circumstances of death for each premature decedent are given in Appendix 13.

Clinical Signs

Compound Related Signs

Male animals receiving 75 or 200 mg HMX/kg/day and female mice receiving 250 or 750 mg HMX/kg/day appeared slightly more active than other groups during Weeks 12 and 13 of treatment. Female mice receiving 750 mg HMX/kg/day were more excitable and 'jumpy' from Week 4 to Week 7 of dosing.

Incidental Findings

No other clinical signs were noted which could be attributed to dosing with HMX. The only other clinical signs seen were, for example, bald patches, sparse hair growth and damaged or missing tail tips, distributed throughout the dose groups. These are common occurrences in laboratory mice.

Body Weights

Group mean body weights are presented numerically in Table 1 and graphically in Figures 1 and 2.

Dosing with HMX appeared to have little effect on the body weight of male or female mice.

Male mice receiving 75 mg HMX/kg/day showed a slightly increased body weight gain when compared with control male mice. The effect appeared most marked over Weeks 5 and 6 of treatment where statistical significance of $P<0.001$ and $P<0.01$ respectively was achieved. Over the period of treatment a 6% increase in weight gain compared with that of controls was seen in these mice.

Female mice receiving 250 mg HMX/kg/day achieved an 11% increase in bodyweight gain compared with female control mice. The increase was statistically significant only during Week 11 of dosing ($P<0.05$).

Statistically significant increases in body weight were occasionally noted in other dose groups early and late in the study, but no other consistent trends were noted.

Food Consumption

Group mean food consumption is presented numerically in Table 2.

Male mice receiving 75 or 200 mg HMX/kg/day showed reduced food consumption over the study period, eating 14% or 19% less food than control males respectively.

Female mice receiving 750 mg HMX/kg/day ate slightly less than female control mice (9% reduction over 13 week period). Data for the final weeks of the study may be distorted by the small number of surviving mice receiving 750 mg HMX/kg/day.

Water Consumption

Visual assessment of water intake for each mouse during treatment revealed no intergroup differences.

Achieved Dosage

Group mean values for achieved dosage are presented in Table 3.

The variation in food consumption which occurred during the treatment period resulted in some deviation of weekly achieved dosages from theoretical values, but over the whole treatment period the values are considered to be within acceptable limits.

Diet Analysis

Results of the analysis of diet for HMX concentration are given in Table 4. Methodology of analysis is given in Appendix 14.

Values obtained for the analyses were generally very acceptable, although 5 deviations outwith a 10% limit were obtained. These deviations occurred in the lowest dose groups in all cases but one, and as the theoretical concentrations of HMX in these batches of diet were very low, even a small deviation from theoretical concentration in terms of ppm produced a large % error. The accuracy of formulation and analysis was therefore not felt to be a problem overall.

Ophthalmoscopy

No lesions were observed which could be attributed to dosing with HMX. In 3 animals (2 males receiving 30 mg HMX/kg/day and one control female) during Week 13, the eyelids of the right eye were closed, but this was attributed to damage caused by orbital sinus bleeding.

Laboratory Investigations

Haematology

Group mean values are presented in Tables 5 and 6 and individual values in Appendices 3 and 4. Analyses were carried out during Week 12 of dosing.

Males: No dose related trends were noted between control groups and those receiving HMX and all values fell within expected ranges. Statistically significant differences were occasionally obtained in PCV, MCH, MCV and HepatoQuick time, but these were felt to be due to data structure and not of biological significance. Heinz body preparations were all negative.

Females: All values fell within expected ranges. A slight fall in haemoglobin concentration was noted between controls and mice receiving 750 mg HMX/kg/day, but although this was slightly statistically significant ($P<0.05$) it was felt to be of little biological

significance, particularly in view of the small sample size at 750 mg HMX/kg/day (3 samples only were obtained). A slight increase in WBC count was noted at 750 mg HMX/kg/day ($P<0.05$). This was caused largely by a slight increase in lymphocyte numbers at this dose level ($P<0.01$). As with male mice, other statistically significant events were thought to be due to data structure and not biologically significant. All Heinz body preparations were negative.

Clinical Chemistry

Group mean values are presented in Tables 7 and 8 and individual values in Appendices 5 and 6. Analyses were carried out on samples obtained at termination.

Males: BUN values for animals receiving 75 or 200 mg HMX/kg/day were slightly depressed but values remained within expected ranges.

Glucose concentration in the blood of animals receiving 200 mg HMX/kg/day was reduced compared with controls. Wide variation in glucose concentration was apparent in all groups. ALT and AP values were slightly depressed in animals receiving 200 mg HMX/kg /day compared with control males.

Levels of LDH showed wide variation within all groups. Statistically significant reductions in total protein, albumin and A/G ratios were observed in animals receiving 75 mg HMX/kg/day. The A/G ratio of animals receiving 200 mg HMX/kg/day was also slightly reduced compared with controls.

Females: Mice receiving 250 mg HMX/kg/day showed a slight reduction in AP level compared with control mice. As with male mice, wide variation in LDH values was apparent in all groups.

A statistically significant elevation of albumin concentration was seen in mice receiving 30 mg HMX/kg/day.

Urinalysis

Group mean values are presented in Tables 9 and 10 and individual values presented in Appendices 7 and 8. Urinalysis was carried out during Week 13 of treatment.

Males: Despite water-loading the mice with water at a rate of 0.5 ml/animal, the success rate of urine collection from control animals and those receiving 30 mg HMX/kg/day was low so that comparisons between control and dosed groups cannot readily be made.

Animals receiving 200 mg HMX/kg/day appeared to produce a more acidic urine than control mice. A slight reduction in S.G. was noted with increasing dose level.

Females: A slight increase in SG was noted in animals receiving 250 mg HMX/kg/day compared with controls. This increase was mainly due to the values obtained from 2 mice.

Terminal Studies

Organ Weights

Group mean values are presented in Tables 11-14 and individual results in Appendices 9-12.

Males: A slight increase in absolute brain weight was noted in animals receiving 200 mg HMX/kg/day compared with controls. This was statistically significant to $P<0.001$. Occasional incidences of statistical significance were seen in kidney and testes weights, but without distinct trend.

Brain weight relative to body weight was also slightly increased in mice receiving 200 mg HMX/kg/day compared with controls ($P<0.05$). Relative testes weights were marginally decreased at 12 mg HMX/kg/day ($P<0.05$) or 30 mg HMX/kg/day ($P<0.01$).

Females: Absolute brain weight of female mice receiving 250 mg HMX/kg/day was slightly increased when compared with control mice ($P<0.01$). A minor decrease in kidney weight (at 90 mg HMX/kg/day) and a slightly reduced spleen weight (at 250 mg HMX/kg/day) were also noted. Relative spleen weight was decreased at 250 mg HMX/kg/day compared with controls ($P<0.01$).

Gross and Histopathology

Gross pathology and histopathology findings for individual animals are presented in Appendix 13.

There were no dose related findings in this study. Three animals (one male receiving 75 mg HMX/kg/day and one female in each of the groups receiving 10 or 90 mg HMX/kg/day) had cysts in the brain, and one female animal at 30 mg HMX/kg/day had a cyst in the spinal cord.

DISCUSSION

Despite the relatively high mortality rates at higher dose levels of HMX, little evidence of toxic changes could be found with the investigations carried out.

There was a subjective view that male and female mice at each of their 2 highest dose levels were more excitable than their companions, but this trend was largely masked by the general excitability of the strain of mouse used.

No marked effect on body weight was seen in male or female mice, but reduced food consumption was noted in male mice at the 75 or 200 mg HMX/kg/day dose levels and in female mice at 750 mg HMX/kg/day. This suggests that these mice may have been converting food more efficiently than control mice.

Laboratory investigations were limited by the low survival rate at the high dose level in female mice. Only 3 samples from mice receiving 750 mg HMX/kg/day were received for haematology and there were no samples from these mice for clinical chemistry or urinalysis. However, none of the effects in haematology, clinical chemistry or urinalysis were sufficiently marked to give any indications as to the cause of deaths.

Male mice receiving 200 mg HMX/kg/day showed a slight increase in absolute brain weight, and in brain weight relative to body weight. Female mice also showed a slight increase in absolute brain weight at the 250 mg HMX/kg/day dose level. Interpretation of these findings is made difficult by the containment of the brain within rigid boundaries. Female mice receiving 250 mg HMX/kg/day also showed a slight reduction in absolute and relative splenic weights, but the significance of these findings is unclear. It should be noted that comparison of the organ weights of female mice receiving 750 mg HMX/kg/day with those of control mice cannot readily be made, as none of these mice survived to termination and almost all were found dead, allowing autolysis to commence prior to autopsy. This process may have affected the organ weights, as autolytic changes were seen in some of the tissue sections from these animals.

The cysts seen in the brain or spinal cord of 4 animals on study were thought to be unrelated to dosing with HMX. These lesions have been documented in man and have been seen in rats and mice, generally as incidental findings.

The deaths which occurred at 30 mg HMX/kg/day in both sexes were thought unrelated to dosing with HMX. The circumstances of death of 2 male animals receiving 75 mg HMX/kg/day do not reveal the likely cause of death.

CONCLUSION

Dosing of B6C3F1 mice for 13 weeks with dietary concentrations of HMX at 200 mg/kg/day (males) and 250 or 750 mg/kg/day (females) resulted in greatly increased numbers of deaths. Only minor changes of doubtful significance, were identified in the observations made (e.g. increased brain weight in top dose males and females). None was sufficient to offer an obvious explanation for the deaths.

REFERENCE

1. Zimmerman, H.M. and Innes, J.R.M. (1979), Pathology of Tumours in Laboratory Animals, WHO Vol. 2 p.p. 632.

TABLE 1

HMX: 13 Week Toxicity Study in Mice
Body Weights: Group Mean Values (g)

Treatment Period (weeks)	Dose Group/Dose Level (mg/kg/day)											
	1♂	2♂	3♂	4♂	5♂	6♂	1♀	2♀	3♀	4♀	5♀	6♀
	0	5	12	30	75	200	0	10	30	90	250	750
0	19.5[20]	19.9[20]	20.4*[20]	20.1[20]	20.3*[20]	20.2[20]	17.1[20]	16.9[20]	17.2[20]	17.0[20]	17.5[20]	17.3[20]
0 Day 4	20.8	20.3	21.0	20.8	20.6	19.5	17.4	17.5	17.9	17.7	17.4	16.8
1	21.7	21.9	22.1	21.8	21.7	20.8*[19]	18.1	18.6	19.1**	18.4	17.9	17.8[18]
1 Day 4	22.3	22.2	22.5	22.3	21.8	21.5[16]	18.6	18.5	19.5	18.8	18.2	18.5[12]
2	22.8	22.8	23.0	22.7	22.9	22.8[14]	19.1	19.6	20.2***	19.3	19.4	20.4***[13]
2 Day 4	23.5	23.5	23.3	23.0	23.4	22.9	20.0	20.2	20.6	19.9	19.8	20.5[11]
3	23.8	23.9	23.7	23.5	23.6	23.5[13]	20.6	20.9	21.3*	20.7	20.2[19]	20.2[9]
3 Day 4	23.9	24.1	24.4	23.8	24.1[19]	24.5	21.2	21.5	21.9	21.2	20.4	20.7
4	23.8	24.0	24.6	24.2	24.9*[18]	24.7[12]	21.9	21.8	22.0	21.7	21.3[18]	21.4
5	24.0	24.4	24.8	24.6	25.6***[18]	24.7[10]	22.0	21.9	22.6	21.9	21.9	21.9
6	24.7	24.9	25.4	24.9	26.1**	25.6	22.5	22.6	22.8[19]	22.7	22.9	22.2
7	25.5	25.3	25.7	25.2	26.5*	26.0[9]	23.6	23.3	23.8	23.4	23.4	23.0[7]
8	25.8	25.6	25.9	25.7	26.9*	26.6[8]	23.6	23.7	24.3	23.8	23.8	23.1
9	26.0	25.9	26.5	26.1	27.0*	26.9[7]	24.0	23.9	24.0	23.5	24.0[15]	23.8[4]
10	26.6	26.8	27.1	26.5	27.6*	27.3	24.1	23.7	24.4	23.5	23.8[10]	23.7[3]
11	26.9	27.1	27.7	26.9	27.6	26.7	24.9[19]	25.2	25.1	24.5	25.8*	24.3
12	27.5	27.7	28.0	27.2	28.4	27.3	25.1	25.3	25.3	24.7	26.0[8]	25.3
13	27.5	27.9	28.2	27.7	28.8*	27.6	25.1	25.2	25.7	25.1	26.4	-
Total weight gain Weeks 0-13*	8.0	8.0	7.8	7.6	8.5	7.4	(8.0†) 8.0	8.3	8.5	8.1	8.9	8.0†
% of Controls	-	100	98	95	106	93	-	104	106	101	111	100

† = weight gain to week 12 for Groups 1 and 6♀.
Figures in superscript denote numbers of animals from which data derived.
* = Significantly different from control, P<0.05
** = Significantly different from control, P<0.01
*** = Significantly different from control, P<0.001

TABLE 2

HMX: 13 Week Toxicity Study in Mice
Food Consumption: Group Mean Values (g/Mouse/Week)

Treatment Period (weeks)	Dose Group/Dose Level (mg/kg/day)											
	1♂	2♂	3♂	4♂	5♂	6♂	1♀	2♀	3♀	4♀	5♀	6♀
	0	5	12	30	75	200	0	10	30	90	250	750
1	49^{20}	52^{20}	51^{20}	42^{20}	46^{20}	45^{19}	48^{20}	56^{20}	54^{20}	58^{20}	$^{c}60^{19}$	60^{19}
2	54	59	55	48	42	44^{14}	50	53	48	$^{a}47$	44^{20}	37^{13}
3	54	49	$^{a}57$	$^{a}66$	54	45^{13}	55	64	64	$^{b}64^{19}$	69^{19}	61^{9}
4	62	62	60	59	52^{18}	41^{12}	65	65	66	66^{20}	66	63
5	69	64	69	68	58	58^{11}	72	69	68	69	64^{18}	66
6	74	70	73	70	55	57^{10}	74	66	69^{19}	73	70	67
7	68	64	66	62	58	59^{9}	65	65	63	62	59	56^{8}
8	63	59	61	62	55	52^{8}	63	62	65	62	61	57^{7}
9	59	61	66	61	56	63^{7}	67	63	63	62	62^{15}	62^{4}
10	59	65	54	55	51	50	59	63	67	64	63^{11}	56^{3}
11	55	60	58	$^{b}55^{19}$	50	47	62^{19}	68	68	65	68^{10}	61
12	57	57	59	52^{20}	50	40	63	66	58	61	56^{8}	44
13	54	61	52	50	41	36	63	65	66	66	58	$^{d}45^{0}$
Total eaten (g) Weeks 1-13	777	783	781	750	668	632	806	825	819	819	800	735
% of Controls	-	101	101	97	86	81	-	102	102	102	99	91

a = animals had flooded cages - food consumption measured over part week

b = food left not recorded

c = omitted from mean due to erroneous data

d = food consumption calculated over fraction of week for 3 animals

Figures in superscript indicate numbers of animals from which data derived

TABLE 3

HMX: 13 Week Toxicity Study in Mice
Achieved Dosage: Group Mean Values (mg/kg/day)

Treatment Period (weeks)	Dose Group/Dose Level (mg/kg/day)										
		2♂	3♂	4♂	5♂	6♂		2♀	3♀	4♀	5♀	6♀
		5	12	30	75	200		10	30	90	250	750
1		5	12	24	71	207		10	29	96	281	1052
2		6	13	35	69	199		10	27	71	194	477
3		5	13	43	93	209		12	39	117	373	1136
4		6	13	36	86	183		12	37	110	291	964
5		5	14	33	84	279		11	32	100	258	821
6		6	13	32	76	228		11	32	99	265	794
7		5	12	27	78	193		10	27	79	222	625
8		4	11	28	69	187		9	29	85	229	682
9		5	12	30	75	235		10	29	90	260	816
10		5	10	27	67	175		10	31	92	258	733
11		5	11	27	72	184		11	31	92	264	776
12		5	13	28	74	165		10	27	86	216	538
13		5	11	27	62	154		10	30	93	231	-
Mean achieved dosage		5.2	12.2	30.5	75.1	199.8		10.5	30.8	93.1	257.1	[a]784.5
% of Nominal		104	102	102	100	100		105	103	103	103	105

a = mean derived from 12 values only

TABLE 4a

HMX: 13 Week Toxicity Study in Mice
Analysis of Diet for HMX

Male Dosed Groups

Date of Sampling	Dose Group	Theoretical Conc. (ppm)	Mean Observed Conc. (ppm)	Deviation of Observed from Theoretical (%)
16 Jan. 1981 Week 1	2♂	14	14	0.0
	3♂	35	32	8.6
	4♂	84	79	6.0
	5♂	225	232	3.1
	6♂	662	657	0.8
23 Jan. 1981 Week 2	2♂	16	16	0.0
	3♂	39	39	0.0
	4♂	113	113	0.0
	5♂	257	274	6.6
	6♂	688	708	2.9
30 Jan. 1981 Week 3	2♂	15	14	6.7
	3♂	38	39	2.6
	4♂	105	102	2.9
	5♂	280	276	1.4
	6♂	756	754	0.3
6 Feb. 1981 Week 4	2♂	16	17	6.3
	3♂	37	36	2.7
	4♂	102	111	8.8
	5♂	282	270	4.3
	6♂	747	719	3.7
27 Feb. 1981 Week 7	2♂	13	13	0.0
	3♂	31	35	12.9
	4♂	76	78	2.6
	5♂	248	250	0.8
	6♂	645	623	3.4

TABLE 4a (continued)

Date of Sampling	Dose Group	Theoretical Conc. (ppm)	Mean Observed Conc. (ppm)	Deviation of Observed from Theoretical (%)
20 March 1981 Week 10	2♂	15	18	20.0
	3♂	35	37	5.7
	4♂	89	94	5.6
	5♂	254	266	4.7
	6♂	661	679	2.7
10 April 1981 Week 13	2♂	16	16	0.0
	3♂	41	38	7.3
	4♂	105	109	3.8
	5♂	302	301	0.3
	6♂	830	874	5.3

TABLE 4b

Female Dosed Groups

Date of Sampling	Dose Group	Theoretical Conc. (ppm)	Mean Observed Conc. (ppm)	Deviation of Observed from Theoretical (%)
16 Jan. 1981 Week 1	2♀	23	28	22.0
	3♀	68	62	8.8
	4♀	204	195	4.4
	5♀	578	595	2.9
	6♀	2146	2109	1.7
23 Jan. 1981 Week 2	2♀	25	25	0.0
	3♀	78	79	1.3
	4♀	201	205	2.0
	5♀	575	569	1.0
	6♀	1753	1726	1.5
30 Jan. 1981 Week 3	2♀	26	28	7.7
	3♀	90	92	2.2
	4♀	258	257	0.4
	5♀	754	750	0.5
	6♀	2650	2781	4.9
6 Feb. 1981 Week 4	2♀	27	25	7.4
	3♀	85	87	2.4
	4♀	247	243	1.6
	5♀	642	622	3.1
	6♀	2228	2279	2.3
27 Feb. 1981 Week 7	2♀	24	27	12.5
	3♀	70	70	0.0
	4♀	204	208	2.0
	5♀	613	624	1.8
	6♀	1787	1788	0.1

TABLE 4b (continued

Date of Sampling	Dose Group	Theoretical Conc. (ppm)	Mean Observed Conc. (ppm)	Deviation of Observed from Theoretical (%)
20 March 1981 Week 10	2♀	27	26	3.7
	3♀	79	84	6.3
	4♀	238	231	2.9
	5♀	685	693	1.2
	6♀	2204	2190	0.6
10 April 1981 Week 13	2♀	27	31	14.8
	3♀	82	82	0.0
	4♀	245	236	3.7
	5♀	728	749	2.9
	6♀	2550	2531	0.7

TABLE 5

HMX: 13 Week Toxicity Study in Mice

Haematology: Males

Group Mean Values

Dose mg/kg /day	Tests Units	Hb g/100 ml	RBC	PCV %	MCH pg	MCV fl	MCHC g/dl	Reti %	WBC	Neut	Lymp	Mono	Eos	Hepa sec
Con	Numbr	10	10	10	10	10	10	7	10	10	10	10	10	10
	Mean	16.5	8.4	47	20	56	35	1.6	6.2	1.1	5.0	0.1	0.0	21.9
	S.D.	0.6	0.3	1	0	1	1	0.6	1.6	0.5	1.3	0.1	0.1	0.9
30	Numbr	10	10	10	10	10	10	10	10	10	10	10	10	10
	Mean	16.3	8.1	48	20	60	34	1.6	6.2	1.1	5.0	0.1	0.0	20.9
	S.D.	1.7	0.9	1	0	8	3	0.7	1.6	0.4	1.4	0.1	0.1	1.2
	Sig			*		*								*
75	Numbr	10	10	10	10	10	10	10	10	10	10	10	10	10
	Mean	16.6	8.2	49	20	60	34	1.3	7.3	1.2	6.1	0.0	0.0	21.4
	S.D.	1.0	0.4	2	1	3	2	0.5	1.2	0.4	1.1	0.1	0.0	0.9
	Sig			**										
200	Numbr	6	6	6	6	6	6	6	6	6	6	6	6	6
	Mean	16.6	8.2	48	20	59	35	1.2	6.1	1.0	5.1	0.1	0.0	21.1
	S.D.	0.4	0.3	1	0	1	1	0.5	1.4	0.4	1.1	0.1	0.0	0.9
	Sig				*									

For remaining units see Appendix 15

* = Significantly different from control, P<0.05

** = Significantly different from control, P<0.01

*** = Significantly different from control, P<0.001

TABLE 6

HMX: 13 Week Toxicity Study in Mice

Haematology: Females

Group Mean Values

Dose mg/kg /day	Tests Units	Hb g/100 ml	RBC	PCV %	MCH pg	MCV fl	MCHC g/dl	Reti %	WBC	Neut	Lymp	Mono	Eos	Hepa sec
Con	Numbr	10	10	10	10	10	10	10	10	10	10	10	10	10
	Mean	17.1	8.3	48	21	58	35	1.0	5.0	0.8	4.1	0.1	0.0	22.7
	S.D.	0.8	0.3	2	1	2	1	0.5	1.7	0.4	1.3	0.1	0.0	2.4
30	Numbr	10	10	10	10	10	10	10	10	10	10	10	10	10
	Mean	16.7	8.3	47	20	57	35	1.4	5.1	0.8	4.3	0.0	0.0	22.0
	S.D.	0.4	0.6	1	1	3	1	0.4	1.6	0.4	1.5	0.0	0.0	1.6
	Sig							*						
90	Numbr	10	10	10	10	10	10	10	10	10	10	10	10	10
	Mean	16.8	8.4	48	20	57	35	1.2	5.2	0.7	4.4	0.1	0.0	21.9
	S.D.	0.7	0.3	1	1	2	1	0.3	1.7	0.3	1.4	0.1	0.0	1.0
	Sig													
250	Numbr	8	8	8	8	8	8	8	8	8	8	8	8	8
	Mean	16.5	8.2	49	20	60	34	1.1	5.6	0.8	4.7	0.1	0.1	22.0
	S.D.	0.7	0.5	1	1	3	1	0.4	0.9	0.3	0.7	0.1	0.0	0.8
	Sig						*						***	
750	Numbr	3	3	3	3	3	3	3	3	3	3	3	3	3
	Mean	16.1	8.3	49	19	59	33	1.2	7.5	0.9	6.6	0.1	0.0	21.4
	S.D.	0.9	0.8	2	1	5	1	0.2	1.7	0.3	1.7	0.0	0.0	0.3
	Sig	*			*		**		*		**			

For remaining units see Appendix 15

* = Significantly different from control, P<0.05

** = Significantly different from control, P<0.01

*** = Significantly different from control, P<0.001

TABLE 7

HNX: 13 Week Toxicity Study in Mice

Clinical Chemistry: Males

Group Mean Values

Dose mg/kg /day	Tests / Units	BUN mmol/l	Glu mmol/l	AST IU/l	ALT IU/l	AP IU/l	LDH IU/l	Na mmol/l	K mmol/l	TP g/l	Alb g/l	AG-R
Con	Numbr	9	9	9	9	9	10	9	9	8	9	8
	Mean	10.6	11.34	59	28	200	645	165	11.0	55	33	1.5
	S.D.	1.6	5.70	11	6	35	354	6	2.5	2	1	0.1
30	Numbr	10	10	10	10	10	10	9	9	9	10	9
	Mean	9.9	10.41	50	24	201	470	164	10.7	54	32	1.5
	S.D.	1.8	4.32	8	5	17	172	3	1.4	2	1	0.1
	Sig											
75	Numbr	10	10	8	10	10	10	10	10	10	10	10
	Mean	8.0	10.92	50	27	197	638	159	11.2	51	30	1.4
	S.D.	1.5	4.46	20	7	30	281	2	2.2	3	1	0.1
	Sig	***								*	***	*
200	Numbr	6	6	6	6	6	6	6	6	5	6	5
	Mean	8.1	7.39	56	20	180	896	168	11.7	56	32	1.2
	S.D.	0.8	3.98	20	4	50	397	13	2.3	6	3	0.1
	Sig	**			*							***

* = Significantly different from control, P<0.05

** = Significantly different from control, P<0.01

*** = Significantly different from control, P<0.001

TABLE 8

HMX: 13 Week Toxicity Study in Mice

Clinical Chemistry: Females

Group Mean Values

Dose mg/kg /day	Tests Units	BUN mmol/l	Glu mmol/l	AST IU/l	ALT IU/l	AP IU/l	LDH IU/l	Na mmol/l	K mmol/l	TP g/l	Alb g/l	AG-R
Con	Numbr	8	8	10	10	9	9	2	2	7	7	7
	Mean	10.5	12.50	62	21	337	628	158	10.0	60	34	1.4
	S.D.	2.2	5.99	17	11	53	231	8	1.6	4	2	0.2
30	Numbr	9	8	9	9	9	9	4	4	8	8	8
	Mean	12.7	12.65	58	28	307	746	170	12.1	63	36	1.3
	S.D.	2.8	7.42	21	12	33	451	12	3.5	4	1	0.1
	Sig										*	
90	Numbr	10	10	10	10	10	10	7	7	10	10	10
	Mean	9.9	12.62	66	26	329	763	167	10.4	61	35	1.4
	S.D.	2.0	4.31	22	6	30	319	7	1.4	3	1	0.1
	Sig											
250	Numbr	7	7	7	7	7	7	1	1	6	7	6
	Mean	10.0	13.45	58	23	277	691	167	8.7	59	33	1.3
	S.D.	1.9	4.95	12	8	39	282			3	1	0.1
	Sig					**						

* = Significantly different from control, P<0.05

** = Significantly different from control, P<0.01

*** = Significantly different from control, P<0.001

TABLE 9

HMX: 13 Week Toxicity Study in Mice
Urinalysis: Group Mean Values - Males

Dose (mg/kg/day)		pH	SG	Vol (ml)
Control	Mean	8.0 [2]	1.033 [4]	0.8 [2]
	S.D.	0.0	0.018	0.4
30	Mean	-	1.028 [2]	-
	S.D.		0.018	
75	Mean	8.1 [10]	1.018 [10]	0.7 [9]
	S.D.	0.9	0.007	0.3
200	Mean	6.9 [7]	1.014 [7]	0.6 [7]
	S.D.	0.8	0.005	0.2

- = no data available

Figures in superscript indicate numbers of animals from which data derived

* = Significantly different from control, P<0.05

** = Significantly different from control, P<0.01

*** = Significantly different from control, P<0.001

TABLE 10

HMX: 13 Week Toxicity Study in Mice

Urinalysis: Group Mean Values - Females

Dose (mg/kg/day)		pH	SG	Vol (ml)
Control	Mean	8.0	1.018	0.9
	S.D.	0.7	0.003	0.3
30	Mean	8.4	1.018	0.9
	S.D.	0.5	0.003	0.2
90	Mean	8.4	1.018	0.7
	S.D.	0.7	0.003	0.3
250	Mean	8.0^{9}	1.023^{9}	0.7^{9}
	S.D.	0.8	0.009	0.3

Data derived from 10 animals unless otherwise stated in superscript

* = Significantly different from control, P<0.05

** = Significantly different from control, P<0.01

*** = Significantly different from control, P<0.00i

TABLE 11

HMX: 13 Week Toxicity Study in Mice
Absolute Organ Weights (g)
Group Mean Values - Males

Dose Level (mg/kg/day) /Sex		Body Weight (g)	Brain	Heart	Kidneys	Liver	Lungs	Spleen	Testes
0♂	Mean	26.3^{20}	0.451	0.156	0.272	1.324	0.175	0.064	0.177
	S.D.	1.3	0.020	0.012	0.017	0.126	0.018	0.008	0.015
5♂	Mean	27.2^{20}	0.449	0.153	0.278	1.363	0.179	0.065	0.177
	S.D.	2.4	0.025	0.014	0.029	0.141	0.025	0.008	0.014
12♂	Mean	27.4^{*20}	0.453^{19}	0.154	0.286*	1.335	0.186	0.061	0.180
	S.D.	1.8	0.016	0.011	0.024	0.146	0.030	0.011	0.014
30♂	Mean	26.6^{19}	0.456^{18}	0.154^{19}	0.277^{19}	1.315^{14}	0.171^{19}	0.063^{19}	0.173^{19}
	S.D.	1.7	0.027	0.016	0.029	0.167	0.015	0.006	0.023
75♂	Mean	28.1^{**18}	0.468^{18}	0.159^{18}	0.283^{18}	1.363^{18}	0.179^{18}	0.062^{18}	0.185^{*18}
	S.D.	1.2	0.017	0.016	0.025	0.077	0.017	0.013	0.017
200♂	Mean	26.9^{7}	0.483^{***7}	0.149^{7}	0.269^{7}	1.324^{7}	0.189^{7}	0.061^{7}	0.178^{7}
	S.D.	1.6	0.016	0.011	0.027	0.130	0.024	0.007	0.013

Data derived from 20 animals unless otherwise stated in superscript

* = Significantly different from control, $P<0.05$

** = Significantly different from control, $P<0.01$

*** = Significantly different from control, $P<0.001$

TABLE 12

HMX: 13 Week Toxicity Study in Mice
Organ Weights as % of Body Weight
Group Mean Values: Males

Dose Level/ (mg/kg/day) /Sex		Body Weight (g)	Brain	Heart	Kidneys	Liver	Lungs	Spleen	Testes
0♂	Mean	26.3^{20}	1.72	0.59	1.03	5.04	0.67	0.25	0.69
	S.D.	1.3	0.09	0.06	0.07	0.45	0.08	0.05	0.07
5♂	Mean	27.2^{20}	1.67	0.56	1.02	5.04	0.67	0.24	0.66
	S.D.	2.4	0.13	0.05	0.09	0.32	0.09	0.05	0.07
12♂	Mean	27.4^{20}	1.66^{19}	0.56	1.04	4.87	0.69	0.22	0.65*
	S.D.	1.8	0.11	0.06	0.07	0.42	0.11	0.05	0.06
30♂	Mean	26.6^{19}	1.72^{18}	0.57^{19}	1.04^{19}	4.94^{19}	0.64^{19}	0.23^{19}	0.64^{**19}
	S.D.	1.7	0.09	0.06	0.09	0.47	0.07	0.05	0.09
75♂	Mean	28.1^{18}	1.67^{18}	0.57^{18}	1.00^{18}	4.85^{18}	0.65^{18}	0.22^{18}	0.66^{18}
	S.D.	1.2	0.07	0.07	0.08	0.29	0.07	0.05	0.06
200♂	Mean	26.9^{7}	1.83^{*7}	0.56^{7}	0.99^{7}	4.91^{7}	0.70^{7}	0.23^{7}	0.66^{7}
	S.D.	1.6	0.15	0.05	0.07	0.27	0.08	0.05	0.06

* = Significantly different from control, $P<0.05$

** = Significantly different from control, $P<0.01$

TABLE 13

HMX: 13 Week Toxicity Study in Mice
Absolute Organ Weights (g)
Group Mean Values: Females

Dose Level (mg/kg/day) /Sex		Body Weight (g)	Brain	Heart	Kidneys	Liver	Lungs	Spleen
0♀	Mean	24.2[19]	0.461[19]	0.139[19]	0.192[19]	1.289[19]	0.186[19]	0.085[19]
	S.D.	1.0	0.022	0.011	0.017	0.123	0.021	0.007
10♀	Mean	24.2	0.463	0.141	0.193	1.291	0.176	0.086
	S.D.	1.3	0.024	0.009	0.015	0.087	0.020	0.009
30♀	Mean	24.8[19]	0.467[19]	0.142[19]	0.198[19]	1.339[19]	0.189[19]	0.089[19]
	S.D.	1.0	0.021	0.010	0.014	0.104	0.024	0.008
90♀	Mean	23.9	0.466	0.133	0.184*	1.312	0.181	0.085
	S.D.	1.6	0.019	0.009	0.024	0.104	0.024	0.008
250♀	Mean	25.4*[8]	0.491**[8]	0.140[8]	0.195[8]	1.386[8]	0.178[8]	0.078*[8]
	S.D.	1.1	0.039	0.011	0.013	0.212	0.020	0.010

Data derived from 20 animals unless otherwise stated in superscript

* = Significantly different from control, $P<0.05$

** = Significantly different from control, $P<0.01$

TABLE 14

HMX: 13 Week Toxicity Study in Mice
Organ Weights as % Body Weight
Group Mean Values: Females

Dose Level (mg/kg/day) /Sex		Body Weight (g)	Brain	Heart	Kidneys	Liver	Lungs	Spleen
0♀	Mean	24.2^{19}	1.92^{19}	0.58^{19}	0.81^{19}	5.33^{19}	0.77^{19}	0.36^{19}
	S.D.	1.0	0.08	0.05	0.06	0.36	0.08	0.05
10♀	Mean	24.2	1.92	0.59	0.79	5.35	0.73	0.35
	S.D.	1.3	0.12	0.06	0.07	0.26	0.07	0.05
30♀	Mean	24.8^{19}	1.88^{19}	0.58^{19}	0.79^{19}	5.39^{19}	0.77^{19}	0.35^{19}
	S.D.	1.0	0.06	0.04	0.06	0.36	0.10	0.05
90♀	Mean	23.9	1.96	0.56	0.80	5.48	0.77	0.35
	S.D.	1.6	0.11	0.05	0.06	0.25	0.11	0.05
250♀	Mean	$25.4^{*\ 8}$	$1.93^{\ 8}$	$0.55^{\ 8}$	$0.79^{\ 8}$	$5.45^{\ 8}$	$0.70^{\ 8}$	$0.30^{**\ 8}$
	S.D.	1.1	0.10	0.05	0.03	0.77	0.09	0.00

Data derived from 20 animals unless otherwise stated in superscript

* = Significantly different from control, $P<0.05$

** = Significantly different from control, $P<0.01$

FIGURE 1

HMX: 13 Week Toxicity Study in Mice
Group Mean Body Weights (g) - Males

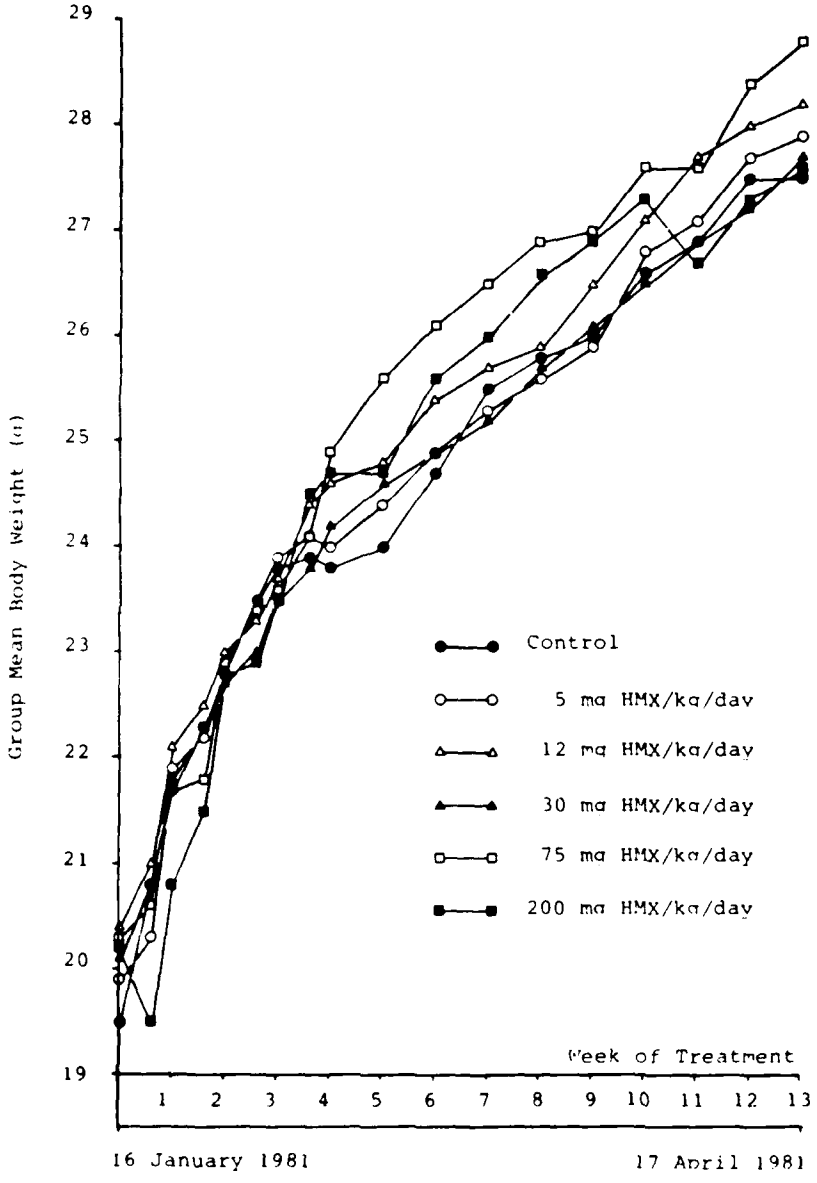
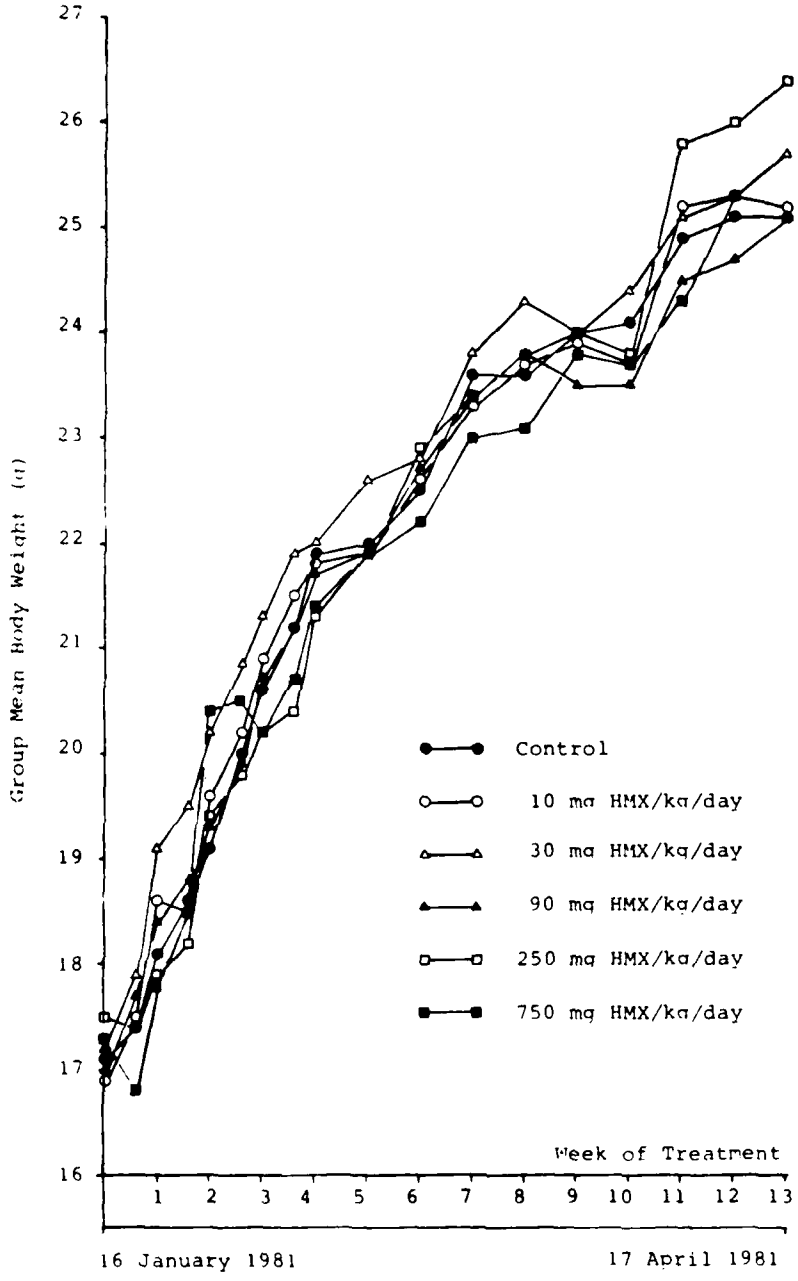


FIGURE 2

HMX: 13 Week Toxicity Study in Mice
Group Mean Body Weight (g) - Females



APPENDIX 1

HMX: 13 Week Toxicity Study in Mice
Diet Analysis

B.P. NUTRITION (U.K.) LTD.
SPECIAL QUALITY CONTROL OF SMALL ANIMAL DIETS

RECEIVED 16 MAR 1981

CERTIFICATE OF ANALYSIS

PRODUCT: RAT & MOUSE NO.1 (MODIFIED) EXPANDED FINE GROUND

BATCH NO: 1091 PREMIX BATCH NO: P121/128

DATE OF MANUFACTURE 27TH JANUARY 1981

Nutrient	Found Analysis		Contaminant	Found Analysis		Limit of Detection
Moisture	8.6	%	Fluorine	8.2	mg/kg	1.0 mg/kg
Crude Fat	3.6	%	Nitrate as $NaNO_3$	7.0	mg/kg	1.0 mg/kg
Crude Protein	15.3	%	Nitrite as $NaNO_2$	2.5	mg/kg	1.0 mg/kg
Crude Fibre	3.5	%	Lead	1.5	mg/kg	0.25 mg/kg
Ash	5.3	%	Arsenic	<0.2	mg/kg	0.2 mg/kg
Calcium	0.74	%	Cadmium	0.21	mg/kg	0.05 mg/kg
Phosphorus	0.65	%	Mercury	<0.01	mg/kg	0.01 mg/kg
Sulphur	0.16	%	Selenium	0.08	mg/kg	0.02 mg/kg
Chlorine	0.51	%				
Potassium	0.83	%				
Magnesium	0.18	%	Total Aflatoxins	NONE DETECTED	mg/kg	1 mcg/kg each of B1,B2,G1,G2
Iron	212	mg/kg				
Copper	14	mg/kg				
Manganese	63	mg/kg				
Zinc	46	mg/kg	Total P.C.B	NONE DETECTED	mg/kg	0.001 mg/kg
			Total D.D.T.	0.011	mg/kg	0.001 mg/kg
			Dieldrin	0.001	mg/kg	0.001 mg/kg
			Lindane	0.004	mg/kg	0.001 mg/kg
			Heptachlor	0.001	mg/kg	0.001 mg/kg
			Malathion	<0.02	mg/kg	0.02 mg/kg
Vitamin A	4750	iu/kg	Total Viable Organisms	3.25×10^3	per grm	1000/g
Vitamin E	85	mg/kg				
Vitamin C		mg/kg	Mesophilic Spores	15.0×10^2	per grm	100/g
			Salmonellae Species	NONE DETECTED	per grm	Absent in 20 grm
			Presumptive E. coli	NONE DETECTED	per grm	Absent in 10 grm
			E. coli Type 1	NONE DETECTED	per grm	Absent in 10 grm
			Fungal Units	NONE DETECTED	per grm	Absent in 10 grm
			Antibiotic Activity			

Signed C.R. Popplestone

Dated 23rd Feb 1981

C R POPPLESTONE M Sc., Ph.D., C.Chem., M.R.S.C.
Quality Control Manager

B.P. Nutrition (U.K.) Limited
1 Stepfield,
Witham,
Essex, CM8 3AB.
Telephone: (0376) 513651

APPENDIX 2

HMX: 13 Week Toxicity Study in Mice
Water Analysis

ICLS

RECEIVED
-4 JUN 1981

Analysis of a Sample of Water

Received [illegible] Your Ref

Our Ref H/B/163

From Inveresk Research International, Scotland.

Labelled Name 1-1 Water main.

Date 14.40hrs 24/3/81

Taken by Dr. Brown Witness L. Shirley Signed

Results *(in milligrammes per litre)*

Appearance

Very faint opal

pH	7.2	Odour			NIL
Electrical conductivity [illegible]	190	Colour (Hazen)			3
Chloride as Cl	10	Turbidity (formazin APHA units)			1.1
Hardness as CaCO Total	65	Nitrogen in Nitrate			0.3
Carbonate	0	Nitrogen in Nitrite		LT	0.01
Non-carbonate	65	Ammoniacal Nitrogen		LT	0.01
Alkalinity as CaCO	70	Albuminoid Nitrogen		LT	0.01
		Permanganate value			0.4
Free Carbon Dioxide	2	Residual Chlorine		LT	0.02
Dissolved Solids dried at 180°C	80	Iron (Fe)	0.06	Zinc (Zn)	0.04
Copper (Cu) [illegible]	Lead (Pb) LT 0.03	Manganese (Mn) LT 0.03		Aluminium (Al)	0.037
Cadmium (Cd) LT [illegible]		Fluorine in Fluoride	LT 0.1	Silica (SiO_2)	8

* Absent unless to a detection limit of 0.0 mg/l of each metal unless otherwise stated

Comment

Suspended Solids LT 5
Volatile Suspended Solids LT 5
Dissolved Oxygen [illegible]
Mercury expressed as Hg LT [illegible]
Selenium expressed as Se LT [illegible]

[illegible] 7th May, 1981

Signed

ICLS

Mineral Analysis of a Sample of Water *(after filtration if necessary)* H/B/163

Labelled

Name 1-1 Water main

(milligrammes per litre and millequivalents per litre)

Cations	mg/l	me/l	Anions	mg/l	me/l		mg/l	me/l
Ca	15	0.73	CO_3	17	0.58	Calcium Carbonate	70	0.69
Mg	5	0.37	SO_4	24	0.50	Calcium Sulphate	70	0.35
Na	6	0.26	Cl	10	0.25	Magnesium Sulphate	21	0.35
K	1	0.03	NO_3	4	0.06	Magnesium Chloride	1	0.02
						Sodium Chloride	13	0.23
						Sodium Nitrate	3	0.03
						Potassium Nitrate	3	0.03
						Silica	8	
Total		1.39	Total		1.39	Total	188	1.39

Total solids dried at 180°C

Comment

This sample is very faint opal in appearance and is free from colour. The reaction is neutral and the water is soft in character with a low content of dissolved solids. The water is free from metals apart from minute traces of zinc, iron and copper and is of a satisfactory standard of organic quality.

These results indicate from the aspect of the chemical analysis, a wholesome water suitable for drinking and domestic purposes.

Edinburgh 7th May, 1981

Signed

APPENDIX 2 (continued)

ICLS

H/B/163

Organochlorine Pesticides

alpha - B.H.C.	NDLT 5 ng/l
gamma - B.H.C.	NDLT 5 ng/l
Heptachlor	NDLT 10 ng/l
Aldrin	NDLT 10 ng/l
Dieldrin	NDLT 20 ng/l
p.p.-D.D.T.	NDLT 10 ng/l

Polynuclear Aromatic Hydrocarbons

Fluoranthene	NDLT 5 ng/l
Benzo (ghi) perylene	NDLT 1 ng/l
Benzo (k) fluoranthene	NDLT 1 ng/l
2,3 o - phenylenepyrene	NDLT 1 ng/l
Benzo (b) fluoranthene	NDLT 1 ng/l
Benzo (a) pyrene	NDLT 1 ng/l
Total PAH	NDLT 10 ng/l

Polychlorinated biphenyls

NDLT 200 ng/l expressed as AROCHLOR 1248

NDLT = Not detected, less than

Signed:

P.S. WATERHOUSE,
for: I.C.L.S. LABORATORIES LIMITED

APPENDIX 3

HMX: 13 Week Toxicity Study in Mice

Haematology: Males

Individual Values

Dose mg/kg /day	Tests Units	Grp	S	Anm	Hb g/100 ml	RBC	PCV %	MCH pg	MCV fl	MCHC g/dl	Reti %	WBC	Neut	Lymp	Mono	Eos	Hepa sec
Con		1	M	1 #	15.7	7.9	46	20	58	34	-	8.5	2.2	6.2	0.1	0.0	21.2
				3	17.0	8.6	48	20	56	35	1.6	6.4	1.2	5.2	0.0	0.0	20.7
				4	17.1	8.4	48	20	57	36	1.2	8.3	1.4	6.6	0.1	0.2	22.3
				5 #	16.6	8.4	46	20	55	36	-	5.0	0.7	4.3	0.1	0.0	20.7
				7 #	16.2	8.2	46	20	56	35	-	6.1	1.3	4.6	0.2	0.0	23.2
				10	16.5	8.5	47	19	55	35	2.2	4.3	0.8	3.5	0.0	0.0	21.7
				11	16.8	8.6	48	20	56	35	2.0	4.7	0.8	3.9	0.0	0.0	23.2
				15	16.6	8.4	47	20	56	35	2.4	4.4	1.1	3.2	0.1	0.0	22.7
				17	15.6	8.0	46	20	58	34	0.8	7.4	0.8	6.4	0.1	0.0	21.7
				20	17.3	8.6	49	20	57	35	1.0	6.9	0.7	6.2	0.0	0.0	21.7
	Mean				16.5	8.4	47	20	56	35	1.6	6.2	1.1	5.0	0.1	0.0	21.9
	S.D.				0.6	0.3	1	0	1	1	0.6	1.6	0.5	1.3	0.1	0.1	0.9
30		4	M	63	16.6	8.3	47	20	57	35	1.2	5.4	1.1	4.2	0.1	0.0	20.7
				67	16.4	8.0	49	21	61	33	1.0	5.7	1.5	4.2	0.1	0.0	19.2
				68	16.9	8.5	49	20	58	34	3.2	6.2	1.2	5.0	0.0	0.0	20.7
				69	16.4	8.1	48	20	59	34	0.8	7.8	1.0	6.5	0.2	0.2	22.7
				72	16.6	8.3	48	20	58	35	1.2	5.9	0.8	4.9	0.2	0.1	21.6
				74	17.3	8.7	51	20	59	34	1.8	7.8	1.8	5.9	0.1	0.0	22.2
				75	16.9	8.2	49	21	60	34	2.4	6.2	1.2	5.0	0.1	0.0	18.9
				76	16.4	8.1	47	20	58	35	1.4	4.6	0.6	4.0	0.0	0.0	20.2
				77	18.1	9.0	48	20	53	38	1.0	9.1	1.5	7.6	0.0	0.0	20.7
				79	11.6	5.8	47	20	81	25	1.6	3.6	0.5	3.0	0.0	0.1	21.7
	Mean				16.3	8.1	48	20	60	34	1.6	6.2	1.1	5.0	0.1	0.0	20.9
	S.D.				1.7	0.9	1	0	8	3	0.7	1.6	0.4	1.4	0.1	0.1	1.2

Insufficient blood for Retic

For remaining units see Appendix 15

APPENDIX 3 (continued)

Dose mg/kg /day	Tests / Units	Grp S Anm	Hb g/100 ml	RBC	PCV %	MCH pg	MCV fl	MCHC g/dl	Reti %	WBC	Neut	Lymp	Mono	Eos	Hepa sec
75	5 M	81	16.0	7.8	48	21	62	33	1.3	6.2	0.9	5.3	0.1	0.0	21.2
		82	17.3	8.7	50	20	57	35	2.0	7.0	1.8	5.3	0.0	0.0	20.7
		84	18.1	8.9	51	20	57	35	0.4	7.1	1.4	5.6	0.1	0.0	22.8
		85	16.7	8.2	48	20	59	35	1.4	5.9	1.1	4.7	0.1	0.0	20.7
		87	15.4	7.6	49	20	64	31	1.0	6.5	0.7	5.8	0.0	0.0	21.2
		89	16.5	8.6	49	19	57	34	1.2	8.9	1.8	7.0	0.1	0.0	22.2
		91	15.5	8.0	51	19	64	30	1.2	8.0	0.6	7.4	0.0	0.1	20.7
		92	16.4	8.3	48	20	58	34	0.8	6.1	0.9	5.2	0.0	0.0	22.7
		93	16.8	7.8	46	22	59	37	2.2	9.0	1.6	7.4	0.0	0.0	21.7
		97	17.8	8.3	51	21	61	35	1.6	8.4	1.2	7.2	0.0	0.0	20.0
	Mean		16.6	8.2	49	20	60	34	1.3	7.3	1.2	6.1	0.0	0.0	21.4
	S.D.		1.0	0.4	2	1	3	2	0.5	1.2	0.4	1.1	0.1	0.0	0.9
200	6 M	101	16.5	7.9	47	21	59	35	1.0	6.1	1.1	5.0	0.0	0.0	21.2
		103	16.5	8.2	48	20	59	34	1.4	3.7	0.6	3.1	0.0	0.0	21.7
		105	15.9	7.9	48	20	61	33	2.0	6.2	0.5	5.7	0.0	0.0	20.7
		109	17.1	8.5	49	20	58	35	1.0	7.9	1.4	6.2	0.2	0.1	22.2
		110	16.7	8.0	48	21	60	35	1.4	6.7	1.2	5.3	0.2	0.0	19.7
		112	16.8	8.4	48	20	57	35	0.6	6.2	0.9	5.2	0.1	0.0	21.2
	Mean		16.6	8.2	48	20	59	35	1.2	6.1	1.0	5.1	0.1	0.0	21.1
	S.D.		0.4	0.3	1	0	1	1	0.5	1.4	0.4	1.1	0.1	0.0	0.9

For remaining units see Appendix 15

APPENDIX 4

HMX: 13 Week Toxicity Study in Mice

Haematology: Females

Individual Values

Dose mg/kg /day	Tests Units		Hb g/100 ml	RBC	PCV %	MCH pg	MCV fl	MCHC g/dl	Reti %	WBC	Neut	Lymp	Mono	Eos	Hepa sec
	Grp	S Anm													
Con	1	F 121	16.6	8.2	51	20	62	33	2.2	5.0	0.8	4.4	0.1	0.0	28.7
		124	17.6	8.3	47	21	57	37	0.6	9.1	1.8	7.1	0.2	0.0	22.2
		125	18.5	9.0	50	21	56	37	1.2	3.0	0.3	2.7	0.0	0.0	21.2
		127	17.5	8.5	48	21	56	36	0.6	5.3	0.8	4.4	0.1	0.0	21.3
		132	16.9	8.1	48	21	59	35	1.0	5.1	0.9	4.1	0.1	0.0	22.7
		133	17.8	8.3	50	21	60	36	0.4	4.7	0.9	3.8	0.0	0.0	21.2
		134	16.9	8.4	48	20	57	35	1.0	3.5	0.7	2.7	0.0	0.0	22.2
		136	16.2	7.9	48	21	61	34	0.8	3.5	0.6	2.8	0.1	0.0	24.7
		137	16.0	8.2	46	20	56	35	1.2	4.4	0.6	3.7	0.1	0.0	21.2
		139	17.1	8.1	48	21	59	36	1.2	6.1	0.9	5.2	0.0	0.0	21.7
	Mean		17.1	8.3	48	21	58	35	1.0	5.0	0.8	4.1	0.1	0.0	22.7
	S.D.		0.8	0.3	2	1	2	1	0.5	1.7	0.4	1.3	0.1	0.0	2.4
30	3	F 161	16.2	7.8	48	21	62	34	1.4	3.8	1.0	2.8	0.0	0.0	21.7
		162	17.2	8.6	47	20	55	37	1.2	8.6	0.8	7.8	0.0	0.0	20.2
		165	17.0	9.0	47	19	52	36	1.0	3.3	0.5	2.8	0.0	0.0	23.7
		166	16.8	7.9	47	21	59	36	1.0	3.7	0.2	3.4	0.0	0.0	21.7
		169	16.6	8.0	47	21	59	35	1.2	5.7	1.0	4.7	0.0	0.0	22.7
		170	16.8	9.1	49	18	54	34	1.6	4.5	0.9	3.5	0.0	0.0	21.2
		172	17.2	8.5	49	20	58	35	1.8	6.1	1.0	5.1	0.1	0.0	21.2
		176	16.6	8.9	47	19	53	35	1.4	4.4	0.5	3.8	0.1	0.0	25.7
		178	15.9	7.6	46	21	61	35	2.2	5.9	1.8	4.1	0.1	0.0	20.7
		179	16.3	7.8	47	21	60	35	1.0	5.4	0.6	4.8	0.0	0.0	21.2
	Mean		16.7	8.3	47	20	57	35	1.4	5.1	0.8	4.3	0.0	0.0	22.0
	S.D.		0.4	0.6	1	1	3	1	0.4	1.6	0.4	1.5	0.0	0.0	1.6

For remaining units see Appendix 15

APPENDIX 4 (continued)

Dose mg/kg /day	Tests Units Grp	S	Anm	Hb g/100 ml	RBC	PCV %	MCH pg	MCV fl	MCHC g/dl	Reti %	WBC	Neut	Lymp	Mono	Eos	Hepa sec
90	4	F	181	16.9	8.2	47	21	57	36	1.2	7.7	0.8	6.8	0.1	0.0	22.7
			183	18.4	8.8	48	21	55	38	1.2	4.2	0.5	3.7	0.0	0.0	23.7
			184	16.6	8.1	48	20	59	35	1.6	6.2	0.9	5.0	0.2	0.1	21.2
			186	16.9	8.7	47	19	54	36	1.2	3.7	0.4	3.0	0.2	0.0	21.7
			187	17.0	8.7	50	20	57	34	1.0	4.2	0.6	3.5	0.1	0.0	21.2
			193	17.0	8.8	50	19	57	34	0.6	5.8	1.0	4.6	0.2	0.0	22.7
			196	16.6	8.2	48	20	59	35	1.4	3.3	0.4	2.9	0.0	0.0	22.2
			197	16.7	8.2	49	20	60	34	1.4	5.4	0.6	4.8	0.1	0.0	20.7
			198	15.8	8.1	46	20	57	34	1.6	7.8	1.2	6.6	0.1	0.0	21.7
			200	16.3	8.0	46	20	58	35	1.0	3.7	0.5	3.1	0.1	0.0	20.7
	Mean			16.8	8.4	48	20	57	35	1.2	5.2	0.7	4.4	0.1	0.0	21.9
	S.D.			0.7	0.3	1	1	2	1	0.3	1.7	0.3	1.4	0.1	0.0	1.0
250	5	F	202	15.7	7.6	48	21	63	33	1.2	6.5	1.3	5.1	0.1	0.1	23.5
			203	15.9	7.8	49	20	63	32	1.0	5.4	1.0	4.3	0.1	0.0	21.2
			205	17.9	8.5	50	21	59	36	0.8	6.2	0.8	5.1	0.2	0.1	22.2
			209	16.7	8.4	47	20	56	36	1.2	5.8	0.5	5.2	0.1	0.1	21.2
			212	16.8	8.1	49	21	60	34	1.9	4.7	0.7	3.9	0.1	0.0	21.3
			213	16.5	8.0	49	21	61	34	1.4	6.3	0.6	5.4	0.3	0.1	21.7
			214	16.9	9.0	49	19	54	34	0.6	6.1	1.0	5.0	0.1	0.1	22.2
			220	15.9	7.9	47	20	59	34	1.0	3.9	0.4	3.5	0.0	0.0	22.7
	Mean			16.5	8.2	49	20	60	34	1.1	5.6	0.8	4.7	0.1	0.1	22.0
	S.D.			0.7	0.5	1	1	3	1	0.4	0.9	0.3	0.7	0.1	0.0	0.8
750	6	F	223	16.5	9.0	49	18	54	34	1.4	6.5	0.6	5.8	0.1	0.0	21.7
			225	15.1	7.4	47	20	64	32	1.2	6.6	1.2	5.4	0.1	0.0	21.2
			239	16.8	8.6	50	20	58	34	1.0	9.5	0.9	8.6	0.1	0.0	21.4
	Mean			16.1	8.3	49	19	59	33	1.2	7.5	0.9	6.6	0.1	0.0	21.4
	S.D.			0.9	0.8	2	1	5	1	0.2	1.7	0.3	1.7	0.0	0.0	0.3

For remaining units see Appendix 15

APPENDIX 5

HMX: 13 Week Toxicity Study in Mice

Clinical Chemistry: Males

Individual Values

Dose mg/kg /day	Tests Units	Grp	S	Anm	BUN mmol/l	Glu mmol/l	AST IU/l	ALT IU/l	AP IU/l	LDH IU/l	Na mmol/l	K mmol/l	TP g/l	Alb g/l	AG-R
Con		1	M	1	9.3	10.60	64	23	208	478	155	7.5	54	31	1.3
				3	9.2	21.11	64	27	214	642	158	12.7	-	34	
				4	12.9	12.04	55	36	247	353	172	9.9	55	33	1.5
				5	9.1	14.50	55	18	178	607	162	10.3	51	31	1.6
				7	# 12.8	5.47	-	36	125	1459	173	10.4	57	33	1.4
				10	$ 11.8	4.96	55	32	-	403	166	15.7	55	33	1.5
				11	10.4	4.08	69	-	208	871	171	13.3	57	34	1.5
				15	-	-	78	27	234	916	-	-	-	-	
				17	10.6	13.38	46	23	191	308	163	9.6	53	33	1.7
				20	9.0	15.94	46	27	194	413	164	9.8	56	34	1.5
	Mean				10.6	11.34	59	28	200	645	165	11.0	55	33	1.5
	S.D.				1.6	5.70	11	6	35	354	6	2.5	2	1	0.1
30		4	M	63	9.9	13.81	50	27	204	453	163	11.5	53	32	1.5
				67	10.6	4.39	64	27	204	712	164	9.8	54	32	1.5
				68	12.6	5.33	41	18	201	388	162	13.6	55	32	1.4
				69	9.8	8.97	46	27	198	776	169	9.8	58	35	1.5
				72	12.3	5.26	41	18	185	248	165	11.8	52	31	1.5
				74	7.3	9.89	50	27	214	433	161	10.3	51	31	1.6
				75	11.2	11.44	59	23	191	562	164	10.5	55	32	1.4
				76	8.1	15.58	59	32	171	478	-	-	-	31	
				77	9.1	14.71	46	23	228	278	160	9.5	55	33	1.5
				79	8.4	14.72	46	18	218	368	164	9.4	55	33	1.5
	Mean				9.9	10.41	50	24	201	470	164	10.7	54	32	1.5
	S.D.				1.8	4.32	8	5	17	172	3	1.4	2	1	0.1

- Insufficient Sample

Anm 7 AST Value of 151IU/l Omitted from Mean

$ Anm 10 AP Value of 515IU/l Omitted from Mean

APPENDIX 5 (continued)

Dose mg/kg /day	Tests / Units	Grp	S	Anm	BUN mmol/l	Glu mmol/l	AST IU/l	ALT IU/l	AP IU/l	LDH IU/l	Na mmol/l	K mmol/l	TP g/l	Alb g/l	AG-R
75		5	M	81	6.9	11.65	73	23	217	672	163	8.2	54	31	1.3
				82	6.3	15.52	50	23	201	448	157	9.1	48	29	1.5
				84	6.7	18.27	64	18	234	353	154	9.5	49	29	1.5
				85	8.6	4.40	41	23	127	926	158	12.3	52	30	1.4
				87	7.9	8.00	13	27	194	1095	161	11.2	48	28	1.4
				89	8.6	9.75	-	23	221	418	161	10.4	53	31	1.4
				91 #	11.2	6.64	-	32	217	926	160	14.1	56	32	1.3
				92	9.4	7.12	41	23	184	398	159	15.4	50	29	1.4
				93	6.9	14.06	73	41	177	796	159	11.1	51	29	1.3
				97	7.4	13.75	46	36	194	343	160	10.7	48	29	1.5
	Mean				8.0	10.92	50	27	197	638	159	11.2	51	30	1.4
	S.D.				1.5	4.46	20	7	30	281	2	2.2	3	1	0.1
200		6	M	101	8.3	12.48	64	18	214	517	170	11.1	56	32	1.3
				103	9.0	10.16	78	23	85	1419	175	13.0	-	33	
				105	8.7	3.50	50	18	211	672	184	11.5	63	34	1.2
				109	7.3	5.62	59	18	214	1384	172	13.7	61	33	1.2
				110	7.1	2.78	18	18	184	672	146	7.5	54	30	1.3
				112	8.1	9.80	64	27	174	712	158	13.5	48	27	1.3
	Mean				8.1	7.39	56	20	180	896	168	11.7	56	32	1.2
	S.D.				0.8	3.98	20	4	50	397	13	2.3	6	3	0.1

- Insufficient Sample
Anm 91 AST Value of 138 IU/l Omitted from Mean

APPENDIX 6

HMX: 13 Week Toxicity Study in Mice

Clinical Chemistry: Females

Individual Values

Dose mg/kg /day	Tests Units		BUN mmol/ l	Glu mmol/ l	AST IU/l	ALT IU/l	AP IU/l	LDH IU/l	Na mmol/ l	K mmol/ l	TP g/l	Alb g/l	AG-R
	Grp	S Anm											
Con	1	F 121	-	-	64	9	294	811	-	-	-	-	
		124	13.7	15.43	73	32	435	522	-	-	65	37	1.3
		125	10.5	13.83	55	32	391	428	-	-	55	35	1.8
		127	9.4	19.54	41	13	341	388	-	-	56	32	1.3
		132	9.5	7.23	64	32	318	527	-	-	63	36	1.3
		133	12.1	5.78	46	18	251	756	164	11.1	60	33	1.2
		134	8.4	3.88	59	18	341	786	-	-	-	-	
		136	12.8	17.21	60	36	314	1045	-	-	62	34	1.2
		137	-	-	101	4	-	-	-	-	-	-	
		139	7.4	17.10	55	18	348	388	152	8.8	58	34	1.4
	Mean		10.5	12.50	62	21	337	628	158	10.0	60	34	1.4
	S.D.		2.2	5.99	17	11	53	231	8	1.6	4	2	0.2
30	3	F 161	12.0	26.33	18	59	288	1817	-	-	68	36	1.1
		162	13.7	19.24	78	32	257	1005	-	-	67	37	1.2
		165	6.7	-	82	27	284	617	-	-	-	-	
		169	13.9	3.82	82	23	328	707	-	-	61	34	1.3
		170	13.3	7.44	46	18	288	463	-	-	66	37	1.3
		171	15.2	6.05	59	27	304	458	187	17.4	59	34	1.4
		176	13.7	10.85	50	23	308	542	163	10.3	58	35	1.5
		178	10.2	13.66	50	23	365	313	163	10.5	63	37	1.4
		179	15.5	13.81	59	23	341	796	166	10.2	64	37	1.4
	Mean		12.7	12.65	58	28	307	746	170	12.1	63	36	1.3
	S.D.		2.8	7.42	21	12	33	451	12	3.5	4	1	0.1

- Insufficient Sample

APPENDIX 6 (continued)

Dose mg/kg /day	Tests Units	Grp	S	Anm	BUN mmol/l	Glu mmol/l	AST IU/l	ALT IU/l	AP IU/l	LDH IU/l	Na mmol/l	K mmol/l	TP g/l	Alb g/l	AG-R
90		4	F	181	8.5	17.16	105	36	288	1020	-	-	64	36	1.3
				183	9.7	16.17	55	23	335	443	159	9.2	57	34	1.5
				184	8.0	17.36	55	18	378	458	168	10.8	59	36	1.6
				186	10.2	13.48	59	18	351	502	167	10.2	59	34	1.4
				187	13.1	5.00	59	27	284	637	168	10.6	60	35	1.4
				193	9.5	7.14	46	23	348	647	164	10.0	60	35	1.4
				196	13.9	9.78	105	32	335	1449	-	-	65	35	1.2
				197	8.8	12.42	46	23	311	607	161	8.6	59	35	1.5
				198	8.6	11.46	64	27	348	966	-	-	63	36	1.3
				200	8.8	16.22	69	32	311	901	181	13.1	63	37	1.4
	Mean				9.9	12.62	66	26	329	763	167	10.4	61	35	1.4
	S.D.				2.0	4.31	22	6	30	319	7	1.4	3	1	0.1
250		5	F	202	8.1	18.69	69	23	274	1000	-	-	-	33	
				203	12.0	9.41	59	32	321	981	-	-	63	34	1.2
				205	11.2	13.82	78	36	291	946	-	-	60	34	1.3
				209	8.3	19.26	50	23	331	333	-	-	58	33	1.3
				212	10.7	14.38	50	18	231	612	-	-	54	32	1.5
				214	7.7	5.18	46	13	247	567	167	8.7	60	34	1.3
				220	11.8	13.41	55	18	244	408	-	-	61	34	1.3
	Mean				10.0	13.45	58	23	277	691	167	8.7	59	33	1.3
	S.D.				1.9	4.95	12	8	39	282			3	1	0.1

- Insufficient Sample

APPENDIX 7

HMX: 13 Week Toxicity Study in Mice
Urinalysis: Individual Values - Males

Dose mg/kg/day	I.D. /Sex	pH	SG	Vol ml	Protein	Glucose	Ketones	Bill-rubin	Urobilinogen	Blood pigments	Colour	MICROSCOPY						
												E	CR	W	R	O	C	A
Control	1♂		1.007	[a]<0.5							PY	0	0	0	0	0	0	0
*	3																	
*	4																	
	5	8.0	1.036	0.5	1	0	0	0	0	1	GRY	0	1	0	0	1	0	0
*	7																	
	10	8.0	1.042	1.0	1	0	0	0	0	0	LY	0	1	0	0	2	0	0
*	11																	
*	15																	
*	17																	
	20		1.048	[a]<0.5							PY	0	1	0	0	0	0	0
	Mean	8.0	1.033	0.8														
	S.D.	0.0	0.018	0.4														
30 *	63♂																	
*	67																	
*	68																	
*	69																	
	72		1.041	<0.5							GRY	0	1	0	0	1	0	0
*	74																	
*	75																	
	76		1.015	<0.5							PY	1	1	0	0	1	0	0
*	77																	
*	79																	
	Mean		1.028															
	S.D.		0.018															

* = No sample obtained
[a] = Value omitted from mean

APPENDIX 7 (continued)

Dose mg/kg/day	I.D. /Sex	pH	SG	Vol ml	Prot-ein	Glucose	Ketones	Bill-rubin	Urobil inogen	Blood pig-ments	Colour	MICROSCOPY						
												E	CR	W	R	O	C	A
75	81♂	7.0	1.010	0.5	1	0	0	0	0	0	PY	0	1	0	0	2	0	0
	82	8.0	1.019	0.5	0	0	0	0	0	0	PY	0	1	0	0	1	0	0
	84	9.0	1.019	1.0	1	0	0	0	0	0	PY	0	0	0	0	1	0	0
	85	9.0	1.015	1.0	1	1	0	0	0	1	GRY	0	1	0	0	1	0	0
	87	9.0	1.016	0.5	0	0	0	0	0	0	PY	0	2	0	0	1	0	0
	89	7.0	1.016	1.0	1	0	0	0	0	0	PY	0	1	0	0	1	0	0
	91	7.0	1.013	0.5	0	0	0	0	0	0	PY	0	1	0	0	1	0	0
	92	8.0	1.036	[a]<0.5	1	0	0	0	0	0	PY	0	1	0	0	1	0	0
	93	8.0	1.015	0.5	1	0	0	0	0	0	PY	0	1	0	0	1	0	0
	97	9.0	1.020	0.5	0	0	0	0	0	0	PY	0	1	0	0	1	0	0
	Mean	8.1	1.018	0.7														
	S.D.	0.9	0.007	0.3														
200	101♂	6.5	1.016	0.5	0	0	0	0	0	0	PY	0	1	0	0	1	0	0
	103	7.0	1.023	0.5	0	0	0	0	0	0	PY	0	1	0	0	2	0	0
	105	8.0	1.014	0.5	0	0	0	0	0	0	PY	0	1	0	0	1	0	0
	109	7.0	1.011	1.0	0	0	0	0	0	0	PY	0	1	0	0	1	0	0
	110	8.0	1.010	0.5	0	0	0	0	0	0	PY	0	1	0	0	1	0	0
	112	6.0	1.013	0.5	0	0	0	0	0	0	PY	0	1	0	0	1	0	0
	114	6.0	1.009	0.5	0	0	0	0	0	0	PY	0	1	0	0	1	0	0
	Mean	6.9	1.014	0.6														
	S.D.	0.8	0.005	0.2														

[a] = Value omitted from mean

APPENDIX 8

HMX: 13 Week Toxicity Study in Mice
Urinalysis: Individual Values - Females

Dose mg/kg/day	I.D. /Sex	pH	SG	Vol ml	Protein	Glucose	Ketones	Bill-rubin	Urobilinogen	Blood pigments	Colour	MICROSCOPY						
												E	CR	W	R	O	C	A
Control	121♀	8.0	1.016	1.0	1	0	0	0	0	2	LY	0	1	0	0	1	0	0
	124	7.0	1.016	1.0	1	0	0	0	0	1	LY	0	1	0	0	0	1	0
	125	8.5	1.020	1.0	1	0	0	0	0	1	GRY	0	1	0	0	1	1	0
	127	9.0	1.017	1.0	1	0	0	0	0	0	LY	0	1	0	0	1	1	0
	132	8.0	1.016	0.5	1	1	0	0	0	3	GRY	0	1	0	0	2	0	0
	133	9.0	1.018	1.0	1	0	0	0	0	0	LY	0	1	0	0	1	1	0
	134	7.5	1.023	1.5	1	0	0	0	0	0	LY	0	1	0	0	1	0	0
	136	8.0	1.024	1.0	1	0	0	0	0	0	LY	0	1	0	0	0	0	0
	137	7.0	1.016	0.5	1	2	0	0	0	2	GRY	0	2	0	0	2	0	0
	139	8.0	1.013	0.5	1	0	0	0	0	0	LY	0	0	0	0	1	0	0
	Mean	8.0	1.018	0.9														
	S.D.	0.7	0.003	0.3														
30	161♀	8.0	1.020	0.5	1	1	0	0	0	0	LY	0	1	0	0	1	0	0
	162	8.0	1.020	1.0	1	1	0	0	0	0	LY	0	1	0	0	2	0	0
	165	8.0	1.014	0.5	1	0	0	0	0	0	LY	0	1	0	0	1	0	0
	166	9.0	1.016	1.0	1	1	0	0	0	1	GRY	0	2	0	0	1	0	0
	169	8.0	1.018	1.0	1	0	0	0	0	0	LY	0	2	0	0	1	0	0
	170	8.0	1.024	1.0	1	1	0	0	0	3	GRY	0	2	0	0	3	0	0
	172	8.5	1.018	1.0	1	0	0	0	0	0	LY	0	1	0	0	1	0	0
	176	9.0	1.015	1.0	1	1	0	0	0	1	GRY	0	1	0	0	2	0	0
	178	9.0	1.018	1.0	1	1	0	0	0	1	LY	0	2	0	0	1	0	0
	179	8.0	1.012	0.5	1	0	0	0	0	0	LY	0	1	0	0	1	0	0
	Mean	8.4	1.018	0.9														
	S.D.	0.5	0.003	0.2														

APPENDIX 8 (continued)

Dose mg/kg/day	I.D. /Sex	pH	SG	Vol ml	Protein	Glucose	Ketones	Bilirubin	Urobilinogen	Blood pigments	Colour	MICROSCOPY						
												E	CR	W	R	O	C	A
90	181♀	8.0	1.015	0.5	1	1	0	0	0	0	PY	0	1	0	0	1	0	0
	183	9.0	1.015	0.5	1	0	0	0	0	0	LY	0	1	0	0	1	0	0
	184	8.5	1.016	1.0	0	0	0	0	0	0	LY	0	1	0	0	1	0	0
	186	8.0	1.022	0.5	1	1	0	0	0	2	GRY	0	1	0	0	1	0	0
	187	8.0	1.012	0.5	1	1	0	0	0	2	GRY	0	1	0	0	3	0	0
	193	9.0	1.015	0.5	1	0	0	0	0	1	LY	0	1	0	0	1	0	0
	196	8.0	1.023	0.5	0	1	0	0	0	3	GRY	0	1	0	0	1	0	0
	197	9.0	1.019	1.5	1	1	0	0	0	3	GRY	0	2	0	0	3	0	0
	198	9.0	1.020	0.5	1	0	0	0	0	0	LY	0	1	0	0	1	1	0
	200	7.0	1.019	0.5	1	0	0	0	0	0	PY	0	1	0	0	0	0	0
	Mean	8.4	1.018	0.7														
	S.D.	0.7	0.003	0.3														
250	202♀	6.5	1.015	0.5	1	1	0	0	0	1	LY	0	2	0	0	2	0	0
	203	7.0	1.018	0.5	1	0	0	0	0	1	LY	0	2	0	0	1	0	0
	205	8.5	1.016	0.5	1	0	0	0	0	0	PY	0	1	0	0	1	0	0
	209	8.0	1.044	0.5	1	0	0	0	0	0	GRY	0	1	0	0	2	0	0
	212	8.0	1.021	0.5	1	0	0	0	0	1	LY	0	2	0	0	3	0	0
	213	9.0	1.026	0.5	1	0	0	0	0	0	LY	0	1	0	0	1	0	0
	214	8.0	1.019	1.0	1	0	0	0	0	0	LY	0	1	0	0	1	0	0
	220	8.0	1.015	1.0	0	0	0	0	0	0	LY	0	1	0	0	1	0	0
	223	9.0	1.031	1.0	1	0	0	0	0	0	GRY	0	1	0	0	1	1	0
	Mean	8.0	1.023	0.7														
	S.D.	0.8	0.009	0.3														

APPENDIX 9

HMX: 13 Week Toxicity Study in Mice

Absolute Organ Weight (g)

Individual Values - Premature Decedents (Males)

Dose Level/ (mg/kg/day)	Animal Number	Week of Death	Body Weight (g)	Brain	Heart	Kidneys		Liver	Lungs	Spleen	Testes	
						L	R				L	R
30♂	78	14	27	0.46	0.15	0.30	0.33	1.47	0.19	0.04	0.16	0.13
75♂	88	4	21	0.41	0.18	0.21	0.24	1.26	0.18	0.04	NW	NW
	94	4	26	0.48	0.19	0.25	0.27	1.80	0.22	0.06	0.15	0.16
200♂	102	2	21	0.45	0.15	0.23	0.24	1.61	0.25	0.05	0.16	0.16
	104	3	21	0.45	0.14	0.21	0.23	1.41	0.17	0.04	0.14	0.14
	106	2	22	0.45	0.14	0.22	0.22	1.50	0.21	0.05	0.13	0.12
	107	2	23	0.49	0.16	0.23	0.26	1.46	0.21	0.05	0.13	0.13
	108	2	20	0.43	0.16	0.21	0.22	1.27	NW	0.05	0.11	0.11
	111	6	24	0.47	0.18	0.22	0.23	1.73	0.32	0.04	NW	NW
	113	4	25	0.48	0.16	0.23	0.26	1.72	0.21	0.06	NW	NW
	115	5	27	0.49	0.21	0.27	0.27	1.70	0.19	0.06	NW	NW
	116	9	26	0.52	0.20	0.28	0.29	1.69	0.23	0.06	0.17	0.17
	117	2	24	0.46	0.20	0.29	0.27	1.41	0.26	0.07	0.15	0.14
	118	1	17	0.45	0.14	0.18	0.19	1.05	NW	0.50	0.11	0.09
	119	6	27	0.49	0.18	0.26	0.28	1.72	0.23	0.07	0.16	0.18
	120	8	24	NW	0.15	0.29	0.33	1.58	0.20	0.06	NW	NW

NW = not weighed

APPENDIX 10

HMX: 13 Week Toxicity Study in Mice
Absolute Organ Weights (g)
Individual Values - Premature Decedents (Females)

Group/Sex Dose Level	Animal Number	Body Weight (g)	Week of Deaths	Brain	Heart	Kidneys L	Kidneys R	Liver	Lungs	Spleen
0♀	131	19	11	0.45	0.13	0.15	0.16	0.70	0.16	0.04
30♀	168	22	6	0.43	0.16	0.20	0.20	1.63	0.15	0.10
250♀	201	27	10	0.50	0.17	0.19	0.20	1.99	0.30	0.06
	204	25	12	0.44	0.17	0.22	0.21	1.56	0.32	0.07
	206	24	10	0.47	0.16	0.18	0.17	1.51	0.26	0.07
	207	21	4	0.45	0.15	0.17	0.18	1.48	0.16	0.06
	208	23	9	0.47	0.17	0.18	0.20	1.74	0.21	0.06
	210	27	10	0.50	0.15	0.22	0.21	1.78	0.23	0.07
	211	18	3	NW	0.13	0.16	0.15	1.41	0.19	0.08
	215	23*	8	0.47	0.15	0.17	0.19	1.41	0.20	0.08
	216	25	10	0.48	0.15	0.19	0.19	1.82	0.22	0.07
	217	25	10	0.44	0.17	0.20	0.22	1.69	0.21	0.06
	218	26*	9	NW	0.17	0.20	0.21	2.18	0.21	0.07
	219	29	11	0.54	0.18	0.25	0.21	1.85	0.30	0.06
750♀	221	19	2	0.46	0.15	0.17	0.17	1.34	NW	0.06
	222	25	7	0.49	0.17	0.12	0.19	1.87	0.23	0.07
	223	25	13	0.50	0.15	0.19	0.21	1.88	0.27	0.10
	224	23	3	0.48	0.15	0.19	0.19	1.61	0.21	0.07

* = Animal room body weight
NW = not weighed

APPENDIX 10 (continued)

Group/Sex Dose Level	Animal Number	Body Weight (g)	Week of Deaths	Brain	Heart	Kidneys		Liver	Lungs	Spleen
						L	R			
750♀	225	28	13	0.51	0.19	0.22	0.23	2.16	0.39	0.13
	226	20	1	0.45	0.15	0.16	0.15	1.57	NW	0.05
	227	19	2	0.47	0.13	0.15	0.16	1.44	NW	0.06
	228	25	10	0.51	0.21	0.20	0.22	1.81	0.28	0.54
	229	19	2	0.47	0.12	0.16	0.16	1.16	0.25	0.07
	230	19	3	0.47	0.11	0.14	0.15	1.55	0.25	0.05
	231	18	3	0.47	0.14	0.16	0.17	1.21	0.16	0.06
	232	24	9	0.46	0.18	0.18	0.18	1.77	0.32	0.07
	233	19	2	0.46	0.16	0.18	0.17	1.44	NW	0.05
	234	18	2	0.45	0.11	0.14	0.15	1.33	0.15	0.05
	235	23	8	0.49	0.16	0.19	0.21	1.79	0.21	0.07
	236	24	9	0.49	0.18	0.21	0.19	1.97	0.24	0.06
	237	23	3	0.46	0.17	0.19	0.19	1.34	0.29	0.06
	238	22	7	0.49	0.13	0.16	0.17	1.49	0.17	0.07
	239	24	13	0.47	0.17	0.24	0.23	1.57	0.31	0.11
	240	14	1	0.46	0.11	0.12	0.14	0.83	NW	NW

NW = not weighed

APPENDIX 11

HMX: 13 Week Toxicity Study in Mice
Absolute Organ Weights
Individual Values - Terminal Sacrifice (Males)

Dose Level/Sex (mg/kg/day)	Animal Number	Body Weight (g)	Brain	Heart	Kidneys L	Kidneys R	Liver	Lungs	Spleen	Testes L	Testes R
0.0	1	25	0.45	0.15	0.27	0.28	1.45	0.16	0.06	0.18	0.19
	2	28	0.46	0.16	0.28	0.29	1.45	0.18	0.07	0.17	0.19
	3	26	0.43	0.15	0.25	0.27	1.27	0.18	0.07	0.21	0.20
	4	25	0.44	0.16	0.26	0.27	1.41	0.17	0.06	0.17	0.19
	5	27	0.45	0.16	0.27	0.27	1.20	0.15	0.07	0.16	0.17
	6	26	0.50	0.15	0.28	0.29	1.31	0.22	0.05	0.13	0.17
	7	26	0.45	0.17	0.28	0.31	1.48	0.16	0.07	0.18	0.19
	8	27[b]	0.46	0.18	0.27	0.30	1.43	0.16	0.06	0.15	0.18
	9	26	0.46	0.16	0.26	0.27	1.22	0.17	0.07	0.17	0.18
	10	24	0.46	0.14	0.24	0.26	1.13	0.17	0.07	0.19	0.18
	11	26	0.47	0.14	0.25	0.27	1.17	0.20	0.05	0.17	0.19
	12	27	0.45	0.17	0.27	0.30	1.38	0.18	0.07	0.19	[a]2.06
	13	26	0.42	0.14	0.26	0.28	1.36	0.17	0.05	0.17	0.15
	14	26	0.45	0.16	0.27	0.28	1.46	0.19	0.06	0.18	0.17
	15	25	0.41	0.14	0.28	0.28	1.16	0.17	0.08	0.17	0.17
	16	25	0.43	0.16	0.27	0.28	1.40	0.20	0.06	0.18	0.16
	17	26	0.45	0.15	0.25	0.27	1.17	0.15	0.06	0.18	0.18
	18	26	0.43	0.14	0.22	0.25	1.18	0.17	0.06	0.17	0.18
	19	28	0.47	0.16	0.26	0.29	1.34	0.18	0.07	0.16	0.18
	20	30	0.47	0.17	0.28	0.30	1.51	0.16	0.07	0.19	0.20
	Mean	26.3	0.451	0.156	0.272		1.324	0.175	0.064	0.177	
	S.D.	1.3	0.020	0.012	0.017		0.126	0.018	0.008	0.015	

[a] = omitted from mean due to suspected erroneous data

[b] = Animal room weight

APPENDIX 11 (continued)

Dose Level/Sex (mg/kg/day)	Animal Number	Body Weight (g)	Brain	Heart	Kidneys L	Kidneys R	Liver	Lungs	Spleen	Testes L	Testes R
5♂	21	31	0.47	0.17	0.31	0.32	1.67	0.20	0.07	0.20	0.19
	22	25	0.44	0.14	0.26	0.26	1.29	0.20	0.06	0.18	0.19
	23	26	0.43	0.14	0.28	0.28	1.24	0.19	0.06	0.19	0.19
	24	26	0.44	0.15	0.26	0.24	1.31	0.21	0.06	0.17	0.17
	25	25	0.46	0.15	0.25	0.27	1.23	0.19	0.06	0.17	0.17
	26	27	0.45	0.14	0.25	0.28	1.31	0.20	0.06	0.17	0.19
	27	27	0.42	0.16	0.28	0.32	1.52	0.18	0.06	0.16	0.16
	28	24	0.40	0.15	0.26	0.27	1.34	0.16	0.06	0.13	0.14
	29	24	0.46	0.14	0.24	0.26	1.30	0.14	0.06	0.18	0.18
	30	32	0.49	0.17	0.33	0.32	1.56	0.23	0.08	0.18	0.18
	31	32	0.46	0.15	0.29	0.30	1.65	0.19	0.07	0.19	0.19
	32	28	0.47	0.16	0.28	0.31	1.31	0.19	0.08	0.18	0.19
	33	26	0.48	0.16	0.24	0.28	1.25	0.14	0.07	0.17	0.18
	34	26	0.41	0.15	0.26	0.30	1.27	0.18	0.07	0.17	0.18
	35	28	0.43	0.13	0.23	0.24	1.32	0.13	0.05	0.17	0.17
	336	28	0.48	0.18	0.32	0.31	1.41	0.18	0.07	0.19	0.18
	37	26	0.46	0.14	0.22	0.25	1.18	0.15	0.06	0.17	0.17
	38	30	0.45	0.18	0.31	0.31	1.44	0.17	0.07	0.18	0.19
	39	26	0.42	0.14	0.26	0.28	1.23	0.17	0.07	0.15	0.19
	40	26	0.46	0.15	0.27	0.30	1.42	0.18	0.06	0.18	0.18
	Mean	27.2	0.449	0.153	0.278		1.363	0.179	0.065	0.177	
	S.D.	2.4	0.025	0.014	0.029		0.141	0.025	0.008	0.014	

APPENDIX 11 (continued)

Dose Level/Sex (mg/kg/day)	Animal Number	Body Weight (g)	Brain	Heart	Kidneys L	Kidneys R	Liver	Lungs	Spleen	Testes L	Testes R
125	41	27	0.43	0.14	0.26	0.28	1.45	0.20	0.06	0.19	0.20
	42	28	0.45	0.14	0.27	0.28	1.41	0.17	0.07	0.17	0.18
	43	28	0.47	0.16	0.30	0.34	1.30	0.26	0.06	0.18	0.21
	44	25	NW	0.15	0.28	0.26	1.29	0.19	0.06	0.16	0.17
	45	30	0.45	0.15	0.31	0.29	1.37	0.17	0.06	0.18	0.21
	46	29	0.47	0.16	0.30	0.32	1.34	0.20	0.07	0.18	0.18
	47	26	0.43	0.16	0.27	0.27	1.23	0.18	0.06	0.18	0.19
	48	27	0.45	0.16	0.31	0.33	1.44	0.16	0.07	0.16	0.18
	49	24	0.45	0.13	0.23	0.25	1.16	0.15	0.05	0.16	0.17
	50	26	0.46	0.14	0.27	0.27	1.31	0.18	0.07	0.19	0.17
	51	29	0.46	0.15	0.27	0.28	1.42	0.17	0.07	0.18	0.19
	52	28	0.45	0.14	0.27	0.28	1.26	0.24	0.06	0.19	0.18
	53	29	0.45	0.16	0.33	0.33	1.57	0.22	0.06	0.21	0.17
	54	28	0.44	0.15	0.29	0.30	1.40	0.14	0.06	0.18	0.18
	55	26	0.47	0.16	0.28	0.30	1.21	0.21	0.06	0.19	0.17
	56	26	0.42	0.17	0.27	0.29	1.47	0.16	0.07	0.15	0.16
	57	27	0.46	0.16	0.27	0.27	1.21	0.20	0.02	0.17	0.18
	58	28	0.47	0.16	0.27	0.28	1.30	0.16	0.06	0.18	0.16
	59	25	0.45	0.16	0.27	0.29	0.96	0.17	0.06	0.18	0.17
	60	31	0.48	0.17	0.30	0.32	1.59	0.18	0.06	0.20	0.19
	Mean	27.4	0.453	0.154	0.286		1.335	0.186	0.061	0.180	
	S.D.	1.8	0.016	0.011	0.024		0.146	0.030	0.011	0.014	

NW = not weighed

APPENDIX 11 (continued)

Dose Level/Sex (mg/kg/day)	Animal Number	Body Weight (g)	Brain	Heart	Kidneys L	Kidneys R	Liver	Lungs	Spleen	Testes L	Testes R
30♂	61	27	0.51	0.17	0.30	0.27	1.63	0.18	0.06	0.22	0.25
	62	32	0.51	0.17	0.28	0.31	1.66	0.17	0.07	0.13	0.13
	63	28	0.47	0.18	0.29	0.30	1.29	0.17	0.07	0.18	0.20
	64	28	0.45	0.14	0.27	0.32	1.63	0.18	0.07	0.19	0.20
	65	26	[a]0.05	0.16	0.26	0.26	1.18	0.19	0.07	0.17	0.16
	66	27	0.48	0.16	0.36	0.32	1.31	0.15	0.06	0.18	0.17
	67	25	0.44	0.14	0.26	0.25	1.18	0.15	0.06	0.16	0.16
	68	25	0.43	0.16	0.28	0.29	1.25	0.16	0.06	0.16	0.16
	69	25	0.45	0.15	0.26	0.25	1.37	0.15	0.06	0.16	0.18
	70	27	0.44	0.15	0.27	0.29	1.44	0.18	0.06	0.19	0.18
	71	27	0.45	0.14	0.27	0.29	1.25	0.18	0.05	0.17	0.16
	72	25	0.45	0.13	0.20	0.24	1.11	0.16	0.06	0.16	0.19
	73	26	0.43	0.16	0.32	0.28	1.23	0.16	0.06	0.17	0.16
	74	27	0.47	0.16	0.28	0.29	1.31	0.18	0.07	0.17	0.17
	75	25	0.44	0.14	0.28	0.27	1.19	0.17	0.07	0.15	0.16
	76	26	0.43	0.14	0.24	0.26	1.36	0.18	0.06	0.18	0.16
	77	25	0.42	0.15	0.25	0.24	1.17	0.16	0.06	0.16	0.16
	79	27	0.44	0.19	0.27	0.30	1.30	0.21	0.06	0.20	0.20
	80	27	0.49	0.14	0.28	0.29	1.13	0.12	0.07	0.16	0.17
	Mean	26.6	0.456	0.154	0.277		1.315	0.171	0.063	0.173	
	S.D.	1.7	0.027	0.016	0.029		0.167	0.015	0.006	0.023	

[a] = omitted from mean due to suspected erroneous data

APPENDIX 11 (continued)

Dose Level/Sex (mg/kg/day)	Animal Number	Body Weight (g)	Brain	Heart	Kidneys L	Kidneys R	Liver	Lungs	Spleen	Testes L	Testes R
75♂	81	29	0.45	0.14	0.27	0.28	1.36	0.16	0.06	0.18	0.21
	82	29	0.50	0.14	0.25	0.29	1.39	0.16	0.05	0.19	0.20
	83	27	0.47	0.14	0.26	0.28	1.33	0.19	0.06	0.17	0.16
	84	28	0.47	0.15	0.29	0.29	1.25	0.18	0.06	0.17	0.19
	85	27	0.47	0.15	0.25	0.26	1.32	0.15	0.05	0.18	0.17
	86	29	0.48	0.20	0.27	0.29	1.60	0.20	0.11	0.19	0.19
	87	26	0.43	0.16	0.27	0.29	1.44	0.17	0.07	0.15	0.16
	89	28	0.48	0.16	0.29	0.28	1.32	0.16	0.06	0.21	0.20
	90	29	0.47	0.15	0.27	0.27	1.33	0.17	0.07	0.16	0.18
	91	28	0.48	0.16	0.25	0.27	1.29	0.18	0.05	0.17	0.18
	92	26	0.46	0.16	0.25	0.28	1.28	0.19	0.06	0.19	0.19
	93	28	0.45	0.16	0.28	0.30	1.40	0.20	0.06	0.17	0.20
	95	27	0.46	0.14	0.25	0.29	1.33	0.19	0.06	0.20	0.20
	96	29	0.48	0.19	0.34	0.37	1.40	0.19	0.06	0.19	0.19
	97	28	0.46	0.16	0.27	0.28	1.36	0.21	0.06	0.18	0.18
	98	28	0.45	0.16	0.29	0.31	1.41	0.19	0.06	0.15	0.19
	99	31	0.48	0.17	0.30	0.32	1.37	0.16	0.06	0.19	0.23
	100	29	0.49	0.17	0.28	0.30	1.36	0.17	0.06	0.19	0.20
	Mean	28.1	0.468	0.159	0.283		1.363	0.179	0.062	0.185	
	S.D.	1.2	0.017	0.016	0.025		0.077	0.017	0.013	0.017	

APPENDIX 11 (continued)

Dose Level/Sex (mg/kg/day)	Animal Number	Body Weight (g)	Brain	Heart	Kidneys L	Kidneys R	Liver	Lungs	Spleen	Testes L	Testes R
200♂	101	28	0.49	0.15	0.28	0.32	1.44	0.21	0.07	0.18	0.19
	103	28	0.47	0.15	0.26	0.26	1.47	0.16	0.06	0.18	0.21
	105	25	0.50	0.14	0.23	0.25	1.26	0.17	0.05	0.16	0.16
	109	25	0.49	0.14	0.25	0.26	1.20	0.21	0.06	0.17	0.18
	110	26	0.46	0.14	0.26	0.24	1.16	0.16	0.06	0.18	0.18
	112	27	0.50	0.15	0.28	0.27	1.28	0.20	0.07	0.18	0.18
	114	29*	0.47	0.17	0.29	0.32	1.46	0.21	0.06	0.17	0.17
	Mean	26.9	0.483	0.149	0.269		1.324	0.189	0.061	0.178	
	S.D.	1.6	0.016	0.011	0.027		0.130	0.024	0.007	0.013	

* = Animal room body weight

APPENDIX 12

HMX: 13 Week Toxicity Study in Mice
Absolute Organ Weights (g)
Individual Values - Terminal Sacrifice (Females)

Group/Sex Dose Level	Animal Number	Body Weight (g)	Brain	Heart	Kidneys L	Kidneys R	Liver	Lung	Spleen
0♀	121	25	0.49	0.14	0.21	0.22	1.41	0.22	0.09
	122	24	0.46	0.14	0.19	0.20	1.36	0.18	0.09
	123	25	0.45	0.14	0.20	0.19	1.43	0.18	0.09
	124	23	0.46	0.13	0.18	0.19	1.21	0.17	0.08
	125	22	0.43	0.13	0.17	0.17	1.08	0.16	0.09
	126	23	0.46	0.12	0.19	0.20	1.13	0.21	0.07
	127	25	0.44	0.14	0.18	0.22	1.15	0.20	0.09
	128	24	0.47	0.15	0.19	0.21	1.25	0.19	0.09
	129	25	0.47	0.15	0.22	0.22	1.45	0.20	0.08
	130	23	0.43	0.12	0.16	0.17	1.24	0.16	0.08
	132	25	0.48	0.15	0.19	0.21	1.37	0.22	0.09
	133	24	0.49	0.16	0.18	0.20	1.27	0.16	0.09
	134	24	0.42	0.15	0.18	0.21	1.32	0.21	0.09
	135	24	0.44	0.14	0.18	0.19	1.18	0.20	0.09
	136	26	0.50	0.15	0.20	0.21	1.49	0.17	0.09
	137	25	0.45	0.13	0.19	0.17	1.47	0.19	0.08
	138	23	0.46	0.13	0.19	0.17	1.22	0.17	0.08
	139	24	0.47	0.13	0.16	0.18	1.19	0.16	0.07
	140	25	0.48	0.14	0.19	0.21	1.28	0.18	0.09
	Mean	24.2	0.461	0.139	0.192		1.289	0.186	0.085
	S.D.	1.0	0.022	0.011	0.017		0.123	0.021	0.007

APPENDIX 12 (continued)

Group/Sex Dose Level	Animal Number	Body Weight (g)	Brain	Heart	Kidneys L	Kidneys R	Liver	Lung	Spleen
10♀	141	25	0.47	0.15	0.20	0.20	1.36	0.22	0.07
	142	26	0.44	0.13	0.19	0.20	1.48	0.18	0.11
	143	24	0.49	0.14	0.19	0.19	1.29	0.19	0.08
	144	24	0.50	0.15	0.19	0.21	1.37	0.20	0.08
	145	22	0.42	0.13	0.17	0.20	1.21	0.14	0.08
	146	25	0.47	0.14	0.18	0.22	1.24	0.18	0.08
	147	25	0.48	0.14	0.20	0.19	1.37	0.17	0.09
	148	22	0.45	0.15	0.18	0.17	1.26	0.15	0.08
	149	25	0.45	0.14	0.19	0.20	1.35	0.20	0.10
	150	24	0.44	0.15	0.17	0.20	1.28	0.17	0.09
	151	26	0.45	0.14	0.18	0.21	1.40	0.21	0.09
	152	23	0.49	0.13	0.19	0.19	1.14	0.17	0.08
	153	23	0.46	0.15	0.18	0.20	1.19	0.17	0.08
	154	26	0.49	0.14	0.22	0.22	1.25	0.17	0.09
	155	24	0.44	0.15	0.19	0.20	1.23	0.17	0.08
	156	24	0.46	0.15	0.20	0.21	1.37	0.16	0.10
	157	24	0.48	0.13	0.17	0.17	1.26	0.16	0.08
	158	22	0.43	0.12	0.16	0.17	1.16	0.15	0.08
	159	25	0.45	0.14	0.20	0.20	1.28	0.17	0.08
	160	24	0.50	0.14	0.20	0.21	1.33	0.18	0.09
	Mean	24.2	0.463	0.141	0.193		1.291	0.176	0.086
	S.D.	1.3	0.024	0.009	0.015		0.087	0.020	0.009

APPENDIX 12 (continued)

Group/Sex Dose Level	Animal Number	Body Weight (g)	Brain	Heart	Kidneys		Liver	Lung	Spleen
					L	R			
30♀	161	25	0.47	0.14	0.21	0.22	1.40	0.22	0.09
	162	23	0.44	0.13	0.17	0.20	1.15	0.17	0.09
	163	27	0.52	0.15	0.19	0.21	1.50	0.23	0.09
	164	24	0.47	0.12	0.18	0.20	1.21	0.18	0.09
	165	25	0.45	0.13	0.20	0.22	1.37	0.20	0.10
	166	24	0.43	0.15	0.18	0.19	1.35	0.19	0.09
	167	25	0.45	0.15	0.20	0.22	1.45	0.19	0.09
	169	25	0.48	0.16	0.18	0.20	1.34	0.18	0.11
	170	25	0.47	0.14	0.19	0.18	1.22	0.17	0.08
	171	24	0.46	0.14	0.19	0.20	1.23	0.17	0.08
	172	24	0.45	0.14	0.20	0.20	1.30	0.23	0.08
	173	26	0.48	0.15	0.19	0.21	1.47	0.17	0.09
	175	25	0.50	0.15	0.20	0.22	1.35	0.16	0.08
	374	25	0.47	0.15	0.21	0.22	1.28	0.20	0.09
	176	24	0.45	0.14	0.18	0.20	1.52	0.19	0.10
	177	26	0.48	0.15	0.18	0.21	1.40	0.20	0.09
	178	25	0.47	0.13	0.18	0.18	1.22	0.16	0.09
	179	24	0.46	0.14	0.20	0.20	1.35	0.16	0.08
	180	26	0.47	0.14	0.19	0.22	1.33	0.23	0.09
	Mean	24.8	0.467	0.142	0.198		1.339	0.189	0.089
	S.D.	1.0	0.021	0.010	0.014		0.104	0.024	0.008

APPENDIX 12 (continued)

Group/Sex Dose Level	Animal Number	Body Weight (g)	Brain	Heart	Kidneys L	Kidneys R	Liver	Lung	Spleen
90♀	181	22	0.47	0.12	0.16	0.18	1.19	0.16	0.07
	182	23	0.45	0.12	0.19	0.19	1.19	0.18	0.09
	183	23	0.46	0.12	0.18	0.19	1.32	0.15	0.09
	184	22	0.45	0.13	0.18	0.21	1.25	0.16	0.08
	185	24	0.46	0.13	0.19	0.20	1.28	0.18	0.09
	186	23	0.46	0.13	0.18	0.20	1.19	0.22	0.09
	187	25	0.48	0.14	0.19	0.19	1.41	0.17	0.08
	188	24	0.45	0.12	0.17	0.20	1.33	0.17	0.08
	189	24	0.47	0.13	0.18	0.18	1.30	0.19	0.08
	190	27	0.46	0.14	0.20	0.21	1.51	0.23	0.09
	191	27	0.50	0.15	0.18	0.20	1.48	0.19	0.09
	192	21	0.47	0.13	0.15	0.17	1.16	0.18	0.08
	193	24	0.46	0.14	0.19	0.18	1.24	0.19	0.09
	194	23	0.46	0.13	0.17	0.18	1.34	0.16	0.07
	195	26	0.46	0.14	0.19	0.20	1.38	0.20	0.09
	196	25	0.50	0.14	0.19	0.21	1.35	0.16	0.08
	197	24	0.50	0.14	0.18	0.20	1.41	0.15	0.08
	198	24	0.47	0.14	0.18	0.19	1.20	0.17	0.09
	199	23	0.42	0.13	0.20	0.19	1.25	0.18	0.10
	200	24	0.47	0.13	0.21	0.21	1.45	0.23	0.09
	Mean	23.9	0.466	0.133	0.184		1.312	0.181	0.085
	S.D.	1.6	0.019	0.009	0.024		0.104	0.024	0.008

APPENDIX 12 (continued)

Group/Sex Dose Level	Animal Number	Body Weight (g)	Brain	Heart	Kidneys L	Kidneys R	Liver	Lung	Spleen
250♀	202	24	0.46	0.13	0.18	0.18	1.09	0.16	0.06
	203	26	0.48	0.15	0.20	0.21	1.66	0.18	0.08
	205	26	0.46	0.14	0.20	0.22	1.70	0.18	0.08
	209	25	0.48	0.14	0.19	0.19	1.27	0.16	0.07
	212	25	0.48	0.15	0.19	0.19	1.25	0.16	0.09
	213	24	0.47	0.12	0.18	0.19	1.46	0.22	0.08
	214	26	0.53	0.14	0.20	0.19	1.26	0.18	0.07
	220	27	0.57	0.15	0.19	0.22	1.40	0.18	0.09
	Mean	25.4	0.491	0.140	0.195		1.386	0.178	0.078
	S.D.	1.1	0.039	0.011	0.013		0.212	0.020	0.010

APPENDIX 13

HMX: 13 Week Toxicity Study in Mice
Gross Pathology and Histopathological Findings
for Individual Animals

Abbreviations used in these reports:

NAD = No abnormality detected.
TK = Terminal kill.
FD = Found dead.
KIE = Killed *in extremis*.

Project No: 416877 Group: 1 Control
Animal No: 1 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	NAD.	Liver	1
		Kidneys	2
		Perirenal fat	1
		Lungs	2
		Heart	1
		Spleen	1
		Thymus	1
		Muscle	1
		Salivary Gl	1
		SM Lymph N	1
		Pancreas	1
		Trachea	1
		Thyroids	2
		Parathyroids	1
		Oesophagus	1
		Stomach	1
		Duodenum	1
		Ileum	1
		Jejunum	1
		Caecum	1
		Colon	1
		Rectum	1
		Mesenteric LN	1
		Aorta	1
		Adrenals	2
		Bronchial LN	2
		Testes	2
		Prostate	1
		Pituitary	1
		Bladder	1
		Skin	2
		Mammary Gl	2
		Eyes	3
		Brain	1
		Spinal cord	1
		Sternum	1
		Nares	1
		Sciatic nerve	1

Project No: 416877 Group: 1 Control

Animal No: 2 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	Liver	1	1
	Kidneys	2	2
	Perirenal fat	1	1
	Lungs	2	2
	Heart	1	1
	Spleen	1	1
	Thymus	1	1
	Muscle	1	1
	Salivary Gl	1	1
	SM Lymph N	1	1
	Pancreas	1	1
	Trachea	1	1
	Thyroids	2	2
	Parathyroids	2	2
	Oesophagus	1	1
	Stomach	1	1
	Duodenum	1	1
	Ileum	1	1
	Jejunum	1	1
	Caecum	1	1
	Colon	1	1
	Rectum	1	1
	Mesenteric LN	1	1
	Aorta	1	1
	Adrenals	2	2
	Bronchial LN	1	1
	Testes	2	2
	Prostate	1	1
	Pituitary	1	1
	Bladder	1	1
	Skin	1	1
	Mammary Gl	0	0
	Eyes	2	2
	Brain	3	3
	Spinal cord	2	2
	Sternum	1	1
	Nares	1	1
	Sciatic nerve	1	1

Project No: 416877 Group: 1 Control

Animal No: 3 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

Tip of tail missing from Week 4.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	NAD.	Liver	1
		Kidneys	2
		Perirenal fat	0
		Lungs	2
		Heart	1
		Spleen	1
		Thymus	1
		Muscle	1
		Salivary Gl	1
		SM Lymph N	1
		Pancreas	1
		Trachea	1
		Thyroids	2
		Parathyroids	0
		Oesophagus	1
		Stomach	1
		Duodenum	1
		Ileum	1
		Jejunum	1
		Caecum	1
		Colon	1
		Rectum	1
		Mesenteric LN	1
		Aorta	1
		Adrenals	2
		Bronchial LN	0
		Testes	2
		Prostate	1
		Pituitary	1
		Bladder	1
		Skin	1
		Mammary Gl	0
		Eyes	2
		Brain	1
		Spinal cord	0
		Sternum	1
		Nares	1
		Sciatic nerve	1

Project No: 416877 Group: 1 Control

Animal No: 4 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	2
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	1
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group. 1 Control
Animal No: 5 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	0
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	0
Eyes	2
Brain	3
Spinal cord	2
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 1 Control
Animal No: 6 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
Left seminal vesicle smaller than right.

Sample	Histopathology
Seminal Vesicles	NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	0
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	0
Aorta	1
Adrenals	2
Bronchial LN	1
Testes	2
Prostate	1
Pituitary	0
Bladder	1
Skin	1
Mammary Gl	0
Eyes	2
Brain	3
Spinal cord	2
Sternum	1
Nares	1
Sciatic nerve	1
Seminal vesicles	2

Project No: 416877 Group: 1 Control
Animal No: 7 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
Stomach	Abscess in lamina propria.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	3
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	0
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	1
Bronchial LN	0
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	2
Eyes	3
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	0

Project No: 416877 Group: 1 Control
Animal No: 8 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	2
Eyes	1
Brain	2
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	2

Project No: 416877 Group: 1 Control
Animal No: 9 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	
		Liver 1
		Kidneys 2
		Perirenal fat 1
		Lungs 2
		Heart 1
		Spleen 1
		Thymus 1
		Muscle 1
		Salivary Gl 1
		SM Lymph N 1
		Pancreas 1
		Trachea 1
		Thyroids 2
		Parathyroids 1
		Oesophagus 1
		Stomach 1
		Duodenum 1
		Ileum 1
		Jejunum 1
		Caecum 1
		Colon 0
		Rectum 1
		Mesenteric LN 1
		Aorta 1
		Adrenals 2
		Bronchial LN 0
		Testes 2
		Prostate 1
		Pituitary 1
		Bladder 1
		Skin 1
		Mammary Gl 0
		Eyes 2
		Brain 3
		Spinal cord 2
		Sternum 1
		Nares 1
		Sciatic nerve 2

Project No: 416877 Group: 1 Control

Animal No: 10 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology
	NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	0
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	0
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	0
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	0
Eyes	2
Brain	3
Spinal cord	2
Sternum	1
Nares	1
Sciatic nerve	2

Project No: 416877 Group: 1 Control

Animal No: 11 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	2
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	2
Mammary Gl	2
Eyes	2
Brain	2
Spinal cord	1
Sternum	1
Nares	2
Sciatic nerve	1

Project No: 416877 Group: 1 Control

Animal No: 12 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	
		Liver 1
		Kidneys 2
		Perirenal fat 1
		Lungs 2
		Heart 1
		Spleen 1
		Thymus 1
		Muscle 1
		Salivary Gl 1
		SM Lymph N 1
		Pancreas 1
		Trachea 1
		Thyroids 0
		Parathyroids 0
		Oesophagus 1
		Stomach 1
		Duodenum 1
		Ileum 1
		Jejunum 1
		Caecum 1
		Colon 1
		Rectum 1
		Mesenteric LN 1
		Aorta 1
		Adrenals 1
		Bronchial LN 1
		Testes 2
		Prostate 0
		Pituitary 0
		Bladder 1
		Skin 0
		Mammary Gl 2
		Eyes 1
		Brain 1
		Spinal cord 2
		Sternum 1
		Nares 1
		Sciatic nerve 2

Project No: 416877 Group: 1 Control

Animal No: 13 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	1
Bronchial LN	1
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	9
Eyes	2
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	2

Project No: 416877 Group: 1 Control
Animal No: 14 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology	Number of Sections Examined	HE
	NAD.	Liver	1
		Kidneys	2
		Perirenal fat	1
		Lungs	3
		Heart	1
		Spleen	1
		Thymus	1
		Muscle	1
		Salivary Gl	1
		SM Lymph N	1
		Pancreas	1
		Trachea	1
		Thyroids	2
		Parathyroids	1
		Oesophagus	1
		Stomach	1
		Duodenum	1
		Ileum	1
		Jejunum	1
		Caecum	1
		Colon	1
		Rectum	1
		Mesenteric LN	1
		Aorta	1
		Adrenals	1
		Bronchial LN	1
		Testes	2
		Prostate	1
		Pituitary	1
		Bladder	1
		Skin	1
		Mammary Gl	2
		Eyes	2
		Brain	2
		Spinal cord	2
		Sternum	1
		Nares	1
		Sciatic nerve	2

Project No: 416877 **Group:** 1 Control

Animal No: 15 **Sex:** ♂

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
	NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	0
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	0
Mammary Gl	1
Eyes	1
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	2

Project No: 416877 Group: 1 Control

Animal No: 16 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	
		Liver 2
		Kidneys 2
		Perirenal fat 1
		Lungs 2
		Heart 1
		Spleen 1
		Thymus 1
		Muscle 1
		Salivary Gl 1
		SM Lymph N 1
		Pancreas 2
		Trachea 1
		Thyroids 2
		Parathyroids 1
		Oesophagus 1
		Stomach 1
		Duodenum 1
		Ileum 1
		Jejunum 1
		Caecum 1
		Colon 1
		Rectum 1
		Mesenteric LN 1
		Aorta 2
		Adrenals 2
		Bronchial LN 1
		Testes 2
		Prostate 1
		Pituitary 1
		Bladder 1
		Skin 2
		Mammary Gl 1
		Eyes 1
		Brain 1
		Spinal cord 1
		Sternum 1
		Nares 1
		Sciatic nerve

Project No: 416877 Group: 1 Control
Animal No: 17 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	
		Liver 1
		Kidneys 2
		Perirenal fat 1
		Lungs 1
		Heart 1
		Spleen 1
		Thymus 1
		Muscle 1
		Salivary Gl 1
		SM Lymph N 0
		Pancreas 1
		Trachea 1
		Thyroids 1
		Parathyroids 0
		Oesophagus 1
		Stomach 1
		Duodenum 1
		Ileum 1
		Jejunum 1
		Caecum 1
		Colon 1
		Rectum 1
		Mesenteric LN 1
		Aorta 1
		Adrenals 0
		Bronchial LN 1
		Testes 2
		Prostate 1
		Pituitary 1
		Bladder 1
		Skin 1
		Mammary Gl 0
		Eyes 1
		Brain 2
		Spinal cord 2
		Sternum 1
		Nares 1
		Sciatic nerve 2

Project No: 416877 Group: Control

Animal No: 18 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	0
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	0
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	0
Eyes	2
Brain	3
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 1 Control

Animal No: 19 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined HE
	NAD.	
		Liver 1
		Kidneys 2
		Perirenal fat 1
		Lungs 2
		Heart 1
		Spleen 1
		Thymus 1
		Muscle 1
		Salivary Gl 1
		SM Lymph N 1
		Pancreas 1
		Trachea 1
		Thyroids 2
		Parathyroids 1
		Oesophagus 1
		Stomach 1
		Duodenum 1
		Ileum 1
		Jejunum 1
		Caecum 1
		Colon 1
		Rectum 1
		Mesenteric LN 1
		Aorta 1
		Adrenals 2
		Bronchial LN 0
		Testes 2
		Prostate 1
		Pituitary 1
		Bladder 1
		Skin 1
		Mammary Gl 0
		Eyes 2
		Brain 3
		Spinal cord 2
		Sternum 1
		Nares 1
		Sciatic nerve 2

Project No: 416877 Group: 1 Control
Animal No: 20 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	NAD.	Liver	1
		Kidneys	2
		Perirenal fat	1
		Lungs	2
		Heart	1
		Spleen	1
		Thymus	1
		Muscle	1
		Salivary Gl	1
		SM Lymph N	1
		Pancreas	1
		Trachea	1
		Thyroids	1
		Parathyroids	0
		Oesophagus	1
		Stomach	1
		Duodenum	1
		Ileum	1
		Jejunum	1
		Caecum	1
		Colon	1
		Rectum	1
		Mesenteric LN	1
		Aorta	1
		Adrenals	2
		Bronchial LN	1
		Testes	2
		Prostate	1
		Pituitary	1
		Bladder	1
		Skin	1
		Mammary Gl	0
		Eyes	2
		Brain	3
		Spinal cord	2
		Sternum	1
		Nares	1
		Sciatic nerve	2

Project No: 416877 *Group:* 2 5 *mg HMX/kg/day*

Animal No: 21 **Sex:** ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group: 2 5 mg HMX/kg/day

Animal No: 22 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
Liver	Several foci lymphocytes and polymorphs.

Number of Sections Examined	ME
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group: 2 5 mg HMX/kg/day

Animal No: 23 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined
			HE
NAD.		NAD.	Liver 2 Kidneys 2 Spleen 1 Brain 3
Necropsy Findings			
NAD.			

Project No: 416877 Group: 2 5 mg HMX/kg/day

Animal No: 24 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 2 5 mg HMX/kg/day
Animal No: 25 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 2 5 mg HMX/kg/day

Animal No: 26 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 2 5 mg HMX/kg/day

Animal No: 27 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology	Number of Sections Examined
		HE
	NAD.	Liver 2
		Kidneys 2
		Spleen 1
		Brain 3

Project No: 416877 **Group:** 2 5 mg HMX/kg/day

Animal No: 28 **Sex:** ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

Bladder distended.

Sample	Histopathology	Number of Sections Examined	HE
Bladder	Not examined.		
		Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 **Group:** 2 5 mg HMX/kg/day

Animal No: 29 **Sex:** ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	HE
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group: 2 5 mg HMX/kg/day

Animal No: 30 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined
NAD.		NAD.	HE
			Liver 2
			Kidneys 2
			Spleen 1
			Brain 3

Necropsy Findings
NAD.

Project No: 416877 Group: 2 5 mg HMX/kg/day

Animal No: 31 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined: HE
NAD.		NAD.	Liver 2 Kidneys 2 Spleen 1 Brain 3

Necropsy Findings
NAD.

Project No: 416877 Group: 2 5 mg HMX/kg/day

Animal No: 32 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group: 2 5 mg HMX/kg/day

Animal No: 33 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	HE
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group: 2 5 mg HMX/kg/day

Animal No: 34 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group: 2 5 mg HMX/kg/day

Animal No: 35 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 2 5 mg HMX/kg/day

Animal No: 336 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 2 5 mg HMX/kg/day

Animal No: 37 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined
NAD.		NAD.	HE Liver 2 Kidneys 2 Spleen 1 Brain 3

Necropsy Findings
NAD.

Project No: 416877 Group: 2 5 mg HMX/kg/day

Animal No: 38 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 2 5 mg HMX/kg/day
Animal No: 39 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 2 5 mg HMX/kg/day
Animal No: 40 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 3 12 mg HMX/kg/day

Animal No: 41 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
	NAD.

Number of Sections Examined	ME
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group: 3 12 mg HMX/kg/day

Animal No: 42 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	Liver 2
		Kidneys 2
		Spleen 1
		Brain 3

Project No: 416877 Group: 3 12 mg HMX/kg/day

Animal No: 43 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined
NAD.		NAD.	HE
			Liver 2
			Kidneys 2
			Spleen 1
			Brain 3

Necropsy Findings
NAD.

Project No: 416877 Group: 3 12 mg HMX/kg/day

Animal No: 44 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	0
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 3 12 mg HMX/kg/day

Animal No: 45 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
	NAD.

Number of Sections Examined	
	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group: 3 12 mg HMX/kg/day

Animal No: 46 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 3 12 mg HMX/kg/day

Animal No: 47 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	
	Liver	1
	Kidneys	2
	Spleen	1
	Brain	3

Project No: 416877 Group: 3 12 mg HMX/kg/day

Animal No: 48 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	NAD.	Liver	1
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group: 3 12 mg HMX/kg/day

Animal No: 49 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	Liver 2 Kidneys 4 Spleen 1 Brain 3

Project No: 416877 Group: 3 12 mg HMX/kg/day

Animal No: 50 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
	NAD.

Number of Sections Examined	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group: 3 12 mg HMX/kg/day

Animal No: 51 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined
NAD.		NAD.	HE Liver 2 Kidneys 2 Spleen 1 Brain 3

Necropsy Findings
NAD.

Project No: 416877 Group: 3 12 mg HMX/kg/day

Animal No: 52 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	ME
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 3 12 mg HMX/kg/day

Animal No: 53 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	1
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 3 12 mg HMX/kg/day

Animal No: 54 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	Liver 2
		Kidneys 2
		Spleen 1
		Brain 3

Project No: 416877 Group: 3 12 mg HMX/kg/day

Animal No: 55 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined: HE
NAD.		NAD.	Liver 2 Kidneys 2 Spleen 1 Brain 3

Necropsy Findings
NAD.

Project No: 416877 Group: 3 12 mg HMX/kg/day

Animal No: 6 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	4
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 3 12 mg HMX/kg/day

Animal No: 57 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
Spleen - small and held in a folded position by pancreas.

Sample	Histopathology
Liver	Four polymorphs.
Spleen	Red and white pulp depletion.

Number of Sections Examined	
	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group: 3 12 mg HMX/kg/day

Animal No: 58 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology	Number of Sections Examined	HE
	NAD.	Liver	2
		Kidneys	1
		Spleen	1
		Brain	3

Project No: 416877 Group: 3 12 mg HMX/kg/day

Animal No: 59 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined: HE
NAD.		NAD.	Liver 2 Kidneys 2 Spleen 1 Brain 3

Necropsy Findings
NAD.

Project No: 416877 Group: 3 12 mg HMX/kg/day

Animal No: 60 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 4 30 mg HMX/kg/day

Animal No: 61 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HF
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
CM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	1
Bronchial LN	1
Testes	1
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	1
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 4 30 mg HMX/kg/day

Animal No: 62 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	1
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	1
Bronchial LN	1
Testes	1
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	1
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 4 30 mg HMX/kg/day

Animal No: 63 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
	NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	1
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	2
Testes	1
Prostate	1
Pituitary	1
Bladder	1
Skin	2
Mammary Gl	2
Eyes	2
Brain	2
Spinal cord	2
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 4 30 mg HMX/kg/day

Animal No: 64 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HF
Liver	1
Kidneys	1
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	1
Brain	2
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	0

Project No: 416877 Group: 4 30 mg HMX/kg/day

Animal No: 65 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	1
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	1
Bronchial LN	1
Testes	1
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	1
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 4 30 mg HMX/kg/day

Animal No: 66 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology	Number of Sections Examined
		HE
	Liver	1
	Kidneys	1
	Perirenal fat	1
	Lungs	1
	Heart	1
	Spleen	1
	Thymus	1
	Muscle	1
	Salivary Gl	1
	SM Lymph N	1
	Pancreas	1
	Trachea	1
	Thyroids	1
	Parathyroids	1
	Oesophagus	1
	Stomach	1
	Duodenum	1
	Ileum	1
	Jejunum	1
	Caecum	1
	Colon	1
	Rectum	1
	Mesenteric LN	1
	Aorta	1
	Adrenals	1
	Bronchial LN	1
	Testes	1
	Prostate	1
	Pituitary	1
	Bladder	1
	Skin	1
	Mammary Gl	1
	Eyes	1
	Brain	1
	Spinal cord	1
	Sternum	1
	Nares	1
	Sciatic nerve	1
NAD.		

Project No: 416877 Group: 4 30 mg HMX/kg/day

Animal No: 67 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined
NAD.		NAD.	HE

Necropsy Findings

NAD.

Sample	HE
Liver	
Kidneys	
Perirenal fat	
Lungs	
Heart	
Spleen	
Thymus	
Muscle	
Salivary Gl	
SM Lymph N	
Pancreas	
Trachea	
Thyroids	
Parathyroids	
Oesophagus	
Stomach	
Duodenum	
Ileum	
Jejunum	
Caecum	
Colon	
Rectum	
Mesenteric LN	
Aorta	
Adrenals	
Bronchial LN	
Testes	
Prostate	
Pituitary	
Bladder	
Skin	
Mammary Gl	
Eyes	
Brain	
Spinal cord	
Sternum	
Nares	
Sciatic nerve	

Project No: 416877 Group: 4 30 mg HMX/kg/day

Animal No: 68 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	1
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	9
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	1
Bronchial LN	9
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	9
Eyes	2
Brain	2
Spinal cord	2
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 4 30 mg HMX/kg/day

Animal No: 69 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
Brain	Focus of fat cells in ventricle.

Number of Sections Examined	HE
Liver	1
Kidneys	1
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	1
Bronchial LN	1
Testes	1
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	1
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 4 30 mg HMX/kg/day

Animal No: 70 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	HE
	NAD.	Liver	1
		Kidneys	2
		Perirenal fat	1
		Lungs	1
		Heart	1
		Spleen	1
		Thymus	1
		Muscle	1
		Salivary Gl	1
		SM Lymph N	1
		Pancreas	1
		Trachea	1
		Thyroids	2
		Parathyroids	2
		Oesophagus	1
		Stomach	1
		Duodenum	1
		Ileum	1
		Jejunum	1
		Caecum	1
		Colon	1
		Rectum	1
		Mesenteric LN	1
		Aorta	1
		Adrenals	2
		Bronchial LN	1
		Testes	2
		Prostate	2
		Pituitary	1
		Bladder	1
		Skin	1
		Mammary Gl	2
		Eyes	2
		Brain	1
		Spinal cord	1
		Sternum	1
		Nares	1
		Sciatic nerve	0

Project No: 416877 Group: 4 30 mg HMX/kg/day

Animal No: 71 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	NAD.	Liver	1
		Kidneys	2
		Perirenal fat	1
		Lungs	1
		Heart	1
		Spleen	1
		Thymus	1
		Muscle	1
		Salivary Gl	1
		SM Lymph N	1
		Pancreas	1
		Trachea	1
		Thyroids	1
		Parathyroids	1
		Oesophagus	1
		Stomach	1
		Duodenum	1
		Ileum	1
		Jejunum	1
		Caecum	1
		Colon	1
		Rectum	1
		Mesenteric LN	1
		Aorta	1
		Adrenals	2
		Bronchial LN	1
		Testes	2
		Prostate	1
		Pituitary	1
		Bladder	1
		Skin	1
		Mammary Gl	1
		Eyes	2
		Brain	1
		Spinal cord	2
		Sternum	1
		Nares	1
		Sciatic nerve	2

Project No: 416877 Group: 4 30 mg HMX/kg/day

Animal No: 72 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	
Kidneys	
Perirenal fat	
Lungs	
Heart	
Spleen	
Thymus	
Muscle	
Salivary Gl	
SM Lymph N	
Pancreas	
Trachea	
Thyroids	
Parathyroids	
Oesophagus	
Stomach	
Duodenum	
Ileum	
Jejunum	
Caecum	
Colon	
Rectum	
Mesenteric LN	
Aorta	
Adrenals	
Bronchial LN	
Testes	
Prostate	
Pituitary	
Bladder	
Skin	
Mammary Gl	
Eyes	
Brain	
Spinal cord	
Sternum	
Nares	
Sciatic nerve	

Project No: 416877 Group: 4 30 mg HMX/kg/day

Animal No: 73 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
	NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	1
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	2
Eyes	2
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 4 30 mg HMX/kg/day

Animal No: 74 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Testes	2
Prostate	2
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	2
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 4 30 mg HMX/kg/day

Animal No: 75 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	Liver	1	1
	Kidneys	2	2
	Perirenal fat	1	1
	Lungs	3	3
	Heart	1	1
	Spleen	1	1
	Thymus	1	1
	Muscle	1	1
	Salivary Gl	1	1
	SM Lymph N	1	1
	Pancreas	1	1
	Trachea	1	1
	Thyroids	1	1
	Parathyroids	1	1
	Oesophagus	1	1
	Stomach	1	1
	Duodenum	1	1
	Ileum	1	1
	Jejunum	1	1
	Caecum	1	1
	Colon	1	1
	Rectum	1	1
	Mesenteric LN	1	0
	Aorta	1	1
	Adrenals	1	1
	Bronchial LN	1	0
	Testes	2	2
	Prostate	1	1
	Pituitary	1	1
	Bladder	1	1
	Skin	1	1
	Mammary Gl	1	0
	Eyes	2	2
	Brain	3	3
	Spinal cord	1	1
	Sternum	1	1
	Nares	1	1
	Sciatic nerve	1	1

Project No: 416877 Group: 4 30 mg HMX/kg/day

Animal No: 76 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined HE
	NAD.	
		Liver 1
		Kidneys 2
		Perirenal fat 1
		Lungs 2
		Heart 1
		Spleen 1
		Thymus 1
		Muscle 1
		Salivary Gl 1
		SM Lymph N 1
		Pancreas 1
		Trachea 1
		Thyroids 2
		Parathyroids 1
		Oesophagus 1
		Stomach 1
		Duodenum 1
		Ileum 1
		Jejunum 1
		Caecum 1
		Colon 1
		Rectum 1
		Mesenteric LN 1
		Aorta 1
		Adrenals 2
		Bronchial LN 1
		Testes 2
		Prostate 1
		Pituitary 1
		Bladder 1
		Skin 1
		Mammary Gl 1
		Eyes 2
		Brain 3
		Spinal cord 1
		Sternum 1
		Nares 1
		Sciatic nerve 1

Project No: 416877 Group: 4 30 mg HMX/kg/day

Animal No: 77 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
Right eye small and shrivelled up in socket.

Sample	Histopathology
Eye	Only one normal eye present on slides.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	2
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	1
Brain	3
Spinal cord	2
Sternum	1
Nares	1
Sciatic nerve	0

Project No: 416877 Group: 4 30 mg HMX/kg/day

Animal No: 78 Sex: ♂

Time on Study (weeks)	Death
14	FD

Clinical History

NAD.

Necropsy Findings

Abdomen filled with yellow fluid.

Mesenteric lymph nodes very friable.

Sample	Histopathology
Liver	Section autolytic.
Thymus and Spleen	Apparent depletion of lymphocytes but autolytic.
Stomach and Intestines	All sections autolytic.
Mesenteric Lymph Node	NAD.
Bladder and Eyes	Autolytic

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	2
Brain	3
Spinal cord	2
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 4 30 mg HMX/kg/day

Animal No: 79 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
	NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	1
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	2
Testes	1
Prostate	1
Pituitary	1
Bladder	1
Skin	2
Mammary Gl	2
Eyes	3
Brain	2
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 4 30 mg HMX/kg/day

Animal No: 80 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	3
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Testes	1
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	0
Eyes	2
Brain	1
Spinal cord	2
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 5 75 mg HMX/kg/day

Animal No: 81 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	
		Liver 1
		Kidneys 2
		Perirenal fat 1
		Lungs 2
		Heart 1
		Spleen 1
		Thymus 1
		Muscle 1
		Salivary Gl 1
		SM Lymph N 1
		Pancreas 1
		Trachea 1
		Thyroids 1
		Parathyroids 0
		Oesophagus 1
		Stomach 1
		Duodenum 1
		Ileum 1
		Jejunum 1
		Caecum 1
		Colon 1
		Rectum 1
		Mesenteric LN 1
		Aorta 1
		Adrenals 2
		Bronchial LN 0
		Testes 2
		Prostate 1
		Pituitary 1
		Bladder 1
		Skin 0
		Mammary Gl 2
		Eyes 1
		Brain 1
		Spinal cord 1
		Sternum 1
		Nares 0
		Sciatic nerve 0

Project No: 416877 Group: 5 75 mg HMX/kg/day

Animal No: 82 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology
Liver	Foci necrosis.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	2
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	2
Brain	1
Spinal cord	2
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 5 75 mg HMX/kg/day

Animal No: 83 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
Brain	Mid line cyst in cerebrum containing cell debris and necrotic material.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Testes	1
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	1
Brain	2
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	2

Project No: 416877 Group: 5 75 mg HMX/kg/day

Animal No: 84 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	2
Eyes	3
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group : 5 75 mg HMX/kg/day

Animal No: 85 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined
NAD.		NAD.	

Necropsy Findings

NAD.

	HE
Liver	1
Kidneys	1
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	1
Bronchial LN	1
Testes	1
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	1
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 5 75 mg HMX/kg/day

Animal No: 86 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	HE
	NAD.	Liver	1
		Kidneys	2
		Perirenal fat	1
		Lungs	1
		Heart	1
		Spleen	1
		Thymus	1
		Muscle	1
		Salivary Gl	1
		SM Lymph N	1
		Pancreas	1
		Trachea	1
		Thyroids	2
		Parathyroids	0
		Oesophagus	1
		Stomach	1
		Duodenum	1
		Ileum	1
		Jejunum	1
		Caecum	1
		Colon	1
		Rectum	1
		Mesenteric LN	1
		Aorta	1
		Adrenals	2
		Bronchial LN	0
		Testes	2
		Prostate	1
		Pituitary	1
		Bladder	1
		Skin	0
		Mammary Gl	2
		Eyes	1
		Brain	2
		Spinal cord	1
		Sternum	1
		Nares	0
		Sciatic nerve	1

Project No: 416877 Group: 5 75 mg HMX/kg/day

Animal No: 87 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	0
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	2
Eyes	2
Brain	3
Spinal cord	2
Sternum	1
Nares	0
Sciatic nerve	0

Project No: 416877 Group: 5 75 mg HMX/kg/day

Animal No: 88 Sex: ♂

Time on Study (weeks)	Death
4	FD

Clinical History

NAD.

Necropsy Findings

Lungs dark red.

Sample	Histopathology
Lungs	Congested and autolytic.
Intestine	Autolytic.
	Sections autolytic.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	
Lungs	1
Heart	
Spleen	
Thymus	
Muscle	
Salivary Gl	
SM Lymph N	
Pancreas	
Trachea	
Thyroids	1
Parathyroids	1
Oesophagus	
Stomach	
Duodenum	
Ileum	
Jejunum	
Caecum	
Colon	
Rectum	
Mesenteric LN	1
Aorta	
Adrenals	2
Bronchial LN	
Testes	2
Prostate	
Pituitary	
Bladder	
Skin	
Mammary Gl	2
Eyes	2
Brain	1
Spinal cord	1
Sternum	1
Nares	
Sciatic nerve	2

Project No: 416877 Group: 5 75 mg HMX/kg/day

Animal No: 89 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	
		Liver 1
		Kidneys 2
		Perirenal fat 1
		Lungs 2
		Heart 1
		Spleen 1
		Thymus 1
		Muscle 1
		Salivary Gl 1
		SM Lymph N 1
		Pancreas 1
		Trachea 1
		Thyroids 2
		Parathyroids 0
		Oesophagus 1
		Stomach 1
		Duodenum 1
		Ileum 1
		Jejunum 1
		Caecum 1
		Colon 1
		Rectum 1
		Mesenteric LN 1
		Aorta 1
		Adrenals 2
		Bronchial LN 1
		Testes 2
		Prostate 1
		Pituitary 1
		Bladder 1
		Skin 1
		Mammary Gl 0
		Eyes 2
		Brain 3
		Spinal cord 1
		Sternum 1
		Nares 1
		Sciatic nerve 2

Project No: 416877 Group: 5 75 mg HMX/kg/day

Animal No: 90 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
Eyes - pupils dilated.

Sample	Histopathology
Eyes	NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	0
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	0
Mammary Gl	0
Eyes	2
Brain	3
Spinal cord	2
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 5 75 mg HMX/kg/day

Animal No: 91 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	1
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Testes	1
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	2
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	0

Project No: 416877 Group: 5 75 mg HMX/kg/day

Animal No: 92 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	1
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	1
Bronchial LN	1
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	1
Brain	3
Spinal cord	2
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 5 75 mg HMX/kg/day

Animal No: 93 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	2
Mammary Gl	2
Eyes	2
Brain	2
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 5 75 mg HMX/kg/day

Animal No: 94 Sex: ♂

Time on Study (weeks)	Death
4	FD

Clinical History	Sample	Histopathology
NAD.		Many sections autolytic.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	1
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Testes	1
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	1
Brain	2
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	0

Project No: 416877 Group: 5 75 mg HMX/kg/day

Animal No: 95 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	HE
	NAD.	Liver	2
		Kidneys	1
		Perirenal fat	1
		Lungs	1
		Heart	1
		Spleen	1
		Thymus	1
		Muscle	1
		Salivary Gl	1
		SM Lymph N	1
		Pancreas	1
		Trachea	1
		Thyroids	1
		Parathyroids	1
		Oesophagus	1
		Stomach	1
		Duodenum	1
		Ileum	1
		Jejunum	1
		Caecum	1
		Colon	1
		Rectum	1
		Mesenteric LN	1
		Aorta	1
		Adrenals	2
		Bronchial LN	1
		Testes	2
		Prostate	1
		Pituitary	1
		Bladder	1
		Skin	2
		Mammary Gl	2
		Eyes	2
		Brain	2
		Spinal cord	1
		Sternum	1
		Nares	2
		Sciatic nerve	1

Project No: 416877 Group: 5 75 mg HMX/kg/day

Animal No: 96 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology
	NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	2
Brain	3
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 5 75 mg HMX/kg/day

Animal No: 97 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	1
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	2
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	2
Mammary Gl	2
Eyes	2
Brain	2
Spinal cord	2
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 5 75 mg HMX/kg/day

Animal No: 98 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	HE
	NAD.	Liver	1
		Kidneys	1
		Perirenal fat	1
		Lungs	1
		Heart	1
		Spleen	1
		Thymus	1
		Muscle	1
		Salivary Gl	1
		SM Lymph N	1
		Pancreas	1
		Trachea	1
		Thyroids	1
		Parathyroids	1
		Oesophagus	1
		Stomach	1
		Duodenum	1
		Ileum	1
		Jejunum	1
		Caecum	1
		Colon	1
		Rectum	1
		Mesenteric LN	1
		Aorta	1
		Adrenals	1
		Bronchial LN	1
		Testes	1
		Prostate	1
		Pituitary	1
		Bladder	1
		Skin	1
		Mammary Gl	1
		Eyes	1
		Brain	1
		Spinal cord	1
		Sternum	1
		Nares	1
		Sciatic nerve	1

Project No: 416877 Group: 5 75 mg HMX/kg/day

Animal No: 99 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	
	HE
Liver	1
Kidneys	1
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Testes	2
Prostate	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	2
Eyes	3
Brain	2
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	2

Project No: 416877 Group: 5 75 mg HMX/kg/day

Animal No: 100 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	NAD.	Liver	1
		Kidneys	2
		Perirenal fat	1
		Lungs	1
		Heart	1
		Spleen	1
		Thymus	1
		Muscle	1
		Salivary Gl	1
		SM Lymph N	1
		Pancreas	1
		Trachea	1
		Thyroids	2
		Parathyroids	2
		Oesophagus	1
		Stomach	1
		Duodenum	1
		Ileum	1
		Jejunum	1
		Caecum	1
		Colon	1
		Rectum	1
		Mesenteric LN	1
		Aorta	1
		Adrenals	2
		Bronchial LN	1
		Testes	2
		Prostate	1
		Pituitary	1
		Bladder	1
		Skin	1
		Mammary Gl	2
		Eyes	2
		Brain	3
		Spinal cord	1
		Sternum	1
		Nares	1
		Sciatic nerve	1

Project No: 416877 Group: 6 200 mg HMX/kg/day

Animal No: 101 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	Liver 2 Kidneys 2 Spleen 1 Brain 3

Project No: 416877 Group: 6 200 mg HMX/kg/day

Animal No: 102 Sex: ♂

Time on Study (weeks)	Death
2	FD

Clinical History
NAD.

Necropsy Findings
Liver - very soft and pale with dark red patches. Thymus - enlarged. Lungs - dark red.

Sample	Histopathology
Liver	Some autolysis, otherwise NAD.
Thymus) Lungs)	Not examined.

Number of Sections Examined	
	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group: 6 200 mg HMX/kg/day

Animal No: 103 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 6 200 mg HMX/kg/day

Animal No: 104 Sex: ♂

Time on Study (weeks)	Death
3	FD

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD but PM change.	
	Liver	2
	Kidneys	2
	Spleen	1
	Brain	3

Project No: 416877 Group: 6 200 mg HMX/kg/day

Animal No: 105 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 6 200 mg HMX/kg/day

Animal No: 106 Sex: ♂

Time on Study (weeks)	Death
2	FD

Clinical History	Sample	Histopathology	Number of Sections Examined	
				ME
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 6 200 mg HMX/kg/day

Animal No: 107 Sex: ♂

Time on Study (weeks)	Death
2	FD

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	Liver 2
		Kidneys 2
		Spleen 1
		Brain 3

Project No: 416877 Group: 6 200 mg HMX/kg/day

Animal No: 108 Sex: ♂

Time on Study (weeks)	Death
2	FD

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
White exudate under eyelids when found dead.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 6 200 mg HMX/kg/day

Animal No: 109 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	HE
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group: 6 200 mg HMX/kg/day
Animal No: 110 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	HE
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group: 6 200 mg HMX/kg/day

Animal No: 111 Sex: ♂

Time on Study (weeks)	Death
6	FD

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 6 200 mg HMX/kg/day

Animal No: 112 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.	Bladder	Not examined.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3
Necropsy Findings				
Bladder distended.				

Project No: 416877 Group: 6 200 mg HMX/kg/day

Animal No: 113 Sex: ♂

Time on Study (weeks)	Death
4	FD

Clinical History	Sample	Histopathology	Number of Sections Examined	
				ME
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 6 200 mg HMX/kg/day

Animal No: 114 Sex: ♂

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group: 6 200 mg HMX/kg/day

Animal No: 115 Sex: ♂

Time on Study (weeks)	Death
5	FD

Clinical History	Sample	Histopathology	Number of Sections Examined
NAD.		NAD.	HE
			Liver 2
			Kidneys 2
			Spleen 1
			Brain 3

Necropsy Findings
NAD.

Project No: 416877 Group: 6 200 mg HMX/kg/day

Animal No: 116 Sex: ♂

Time on Study (weeks)	Death
9	FD

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group. 6 200 mg HMX/kg/day

Animal No: 117 Sex: ♂

Time on Study (weeks)	Death
2	FD

Clinical History
NAD.

Necropsy Findings
Lungs dark red.

Sample	Histopathology
Lungs	Not examined.
Brain	Focal vacuolation of grey matter in cerebellum.

Number of Sections Examined	
	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group: 6 200 mg HMX/kg/day

Animal No: 118 Sex: ♂

Time on Study (weeks)	Death
1	FD

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 6 200 mg HMX/kg/day

Animal No: 119 Sex: ♂

Time on Study (weeks)	Death
6	FD

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			H&E
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group: 6 200 mg HMX/kg/day

Animal No: 120 Sex: ♂

Time on Study (weeks)	Death
8	FD

Clinical History

NAD.

Necropsy Findings

Skin - bald patches.

Penis - excreted bright yellow material.

Preputial glands enlarged.

Right leg thigh muscle - friable.

Thymus enlarged.

Sample	Histopathology	Number of Sections Examined	HE
Skin, penus, preputial glands, thigh muscle and thymus	Not examined.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group: 1 Control
Animal No: 121 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	Liver	1
	Kidneys	2
	Perirenal fat	1
	Lungs	1
	Heart	1
	Spleen	1
	Thymus	1
	Muscle	1
	Salivary Gl	1
	SM Lymph N	1
	Pancreas	1
	Trachea	1
	Thyroids	1
	Parathyroids	1
	Oesophagus	1
	Stomach	1
	Duodenum	1
	Ileum	1
	Jejunum	1
	Caecum	1
	Colon	1
	Rectum	1
	Mesenteric LN	1
	Aorta	1
	Adrenals	2
	Bronchial LN	1
	Ovaries	2
	F tubes	2
	Uterus	1
	Pituitary	1
	Bladder	1
	Skin	2
	Mammary Gl	1
	Eyes	2
	Brain	2
	Spinal cord	2
	Sternum	1
	Nares	1
	Sciatic nerve	1

Project No: 116877 Group: 1 Control
Animal No: 122 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
	NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	1
Bronchial LN	1
Ovaries	1
F tubes	1
Uterus	1
Pituitary	1
Bladder	1
Skin	2
Mammary Gl	2
Eyes	1
Brain	2
Spinal cord	2
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 116877 Group: 1 Control

Animal No: 123 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
Uterus	Cystic glands.
Ovaries	Focus brown staining cells.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	2
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Ovaries	2
F tubes	2
Uterus	2
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	2
Brain	3
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	0

Project No: 416877 Group: 1 Control
Animal No: 124 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology
Muscle	Area polymorphs, probably abcess.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
CM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Ovaries	2
F tubes	2
Uterus	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	2
Brain	3
Spinal cord	2
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 1 Control
Animal No: 125 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Ovaries	2
F tubes	2
Uterus	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	2
Brain	3
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	0

Project No: 116877 Group: 1 Control
Animal No: 126 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
	NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	0
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Ovaries	2
F tubes	1
Uterus	1
Pituitary	1
Bladder	1
Skin	2
Mammary Gl	0
Eyes	2
Brain	2
Spinal cord	2
Sternum	1
Nares	0
Sciatic nerve	1

Project No: 416877 Group : 1 Control
Animal No: 127 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	NAD.	Liver	1
		Kidneys	2
		Perirenal fat	1
		Lungs	2
		Heart	1
		Spleen	1
		Thymus	1
		Muscle	1
		Salivary Gl	1
		CM Lymph N	1
		Pancreas	1
		Trachea	1
		Thyroids	2
		Parathyroids	1
		Oesophagus	1
		Stomach	1
		Duodenum	1
		Ileum	1
		Jejunum	1
		Caecum	1
		Colon	1
		Rectum	1
		Mesenteric LN	1
		Aorta	1
		Adrenals	2
		Bronchial LN	1
		Ovaries	2
		F tubes	2
		Uterus	1
		Pituitary	1
		Bladder	1
		Skin	1
		Mammary Gl	2
		Eyes	2
		Brain	2
		Spinal cord	1
		Sternum	1
		Nares	1
		Sciatic nerve	1

Project No: 416877 Group: 1 Control
Animal No: 128 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
Brain	Focus fat cells in ventricle.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Ovaries	1
F tubes	1
Uterus	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	1
Brain	2
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 1 Control
Animal No: 129 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	NAD.	Liver	1
		Kidneys	2
		Perirenal fat	1
		Lungs	2
		Heart	1
		Spleen	1
		Thymus	1
		Muscle	1
		Salivary Gl	1
		SM Lymph N	1
		Pancreas	1
		Trachea	1
		Thyroids	2
		Parathyroids	2
		Oesophagus	1
		Stomach	1
		Duodenum	1
		Ileum	1
		Jejunum	1
		Caecum	1
		Colon	1
		Rectum	1
		Mesenteric LN	1
		Aorta	1
		Adrenals	2
		Bronchial LN	1
		Ovaries	2
		F tubes	2
		Uterus	1
		Pituitary	1
		Bladder	1
		Skin	1
		Mammary Gl	1
		Eyes	2
		Brain	3
		Spinal cord	2
		Sternum	1
		Nares	1
		Sciatic nerve	1

Project No: 416877 Group : 1 Control

Animal No: 130 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	Liver	1	1
	Kidneys	2	2
	Perirenal fat	0	0
	Lungs	2	2
	Heart	1	1
	Spleen	1	1
	Thymus	1	1
	Muscle	1	1
	Salivary Gl	1	1
	SM Lymph N	1	1
	Pancreas	1	1
	Trachea	1	1
	Thyroids	2	2
	Parathyroids	0	0
	Oesophagus	1	1
	Stomach	1	1
	Duodenum	0	0
	Ileum	1	1
	Jejunum	1	1
	Caecum	1	1
	Colon	1	1
	Rectum	1	1
	Mesenteric LN	1	1
	Aorta	0	0
	Adrenals	2	2
	Bronchial LN	0	0
	Ovaries	2	2
	F tubes	2	2
	Uterus	1	1
	Pituitary	1	1
	Bladder	1	1
	Skin	1	1
	Mammary Gl	1	1
	Eyes	2	2
	Brain	1	1
	Spinal cord	2	2
	Sternum	1	1
	Nares	1	1
	Sciatic nerve	0	0

Project No: 416877 Group: 1 Control
Animal No: 131 Sex: ♀

Time on Study (weeks)	Death
11	FD

Clinical History

Found dead after being trapped in food hopper.

Necropsy Findings

Animal in state of autolysis.

Very lean, little body fat available.

Constipated.

Lungs redder than normal.

Sample	Histopathology
	Tissues autolytic.
Lungs	Congested.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
CM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	2
Ovaries	2
F tubes	1
Uterus	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	1
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	0

Project No: 416877 Group : 1 Control
Animal No: 132 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	NAD.	Liver	1
		Kidneys	2
		Perirenal fat	1
		Lungs	2
		Heart	1
		Spleen	1
		Thymus	1
		Muscle	1
		Salivary Gl	1
		SM Lymph N	1
		Pancreas	1
		Trachea	1
		Thyroids	2
		Parathyroids	1
		Oesophagus	1
		Stomach	1
		Duodenum	1
		Ileum	1
		Jejunum	1
		Caecum	1
		Colon	1
		Rectum	1
		Mesenteric LN	0
		Aorta	0
		Adrenals	2
		Bronchial LN	0
		Ovaries	2
		F tubes	2
		Uterus	1
		Pituitary	1
		Bladder	1
		Skin	1
		Mammary Gl	1
		Eyes	2
		Brain	3
		Spinal cord	2
		Sternum	1
		Nares	1
		Sciatic nerve	2

Project No: 416877 Group: 1 Control
Animal No: 133 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined
NAD.		NAD.	HE
Necropsy Findings			Liver 2
NAD.			Kidneys 2
			Perirenal fat 1
			Lungs 2
			Heart 1
			Spleen 1
			Thymus 1
			Muscle 1
			Salivary Gl 1
			SM Lymph N 1
			Pancreas 1
			Trachea 1
			Thyroids 1
			Parathyroids 1
			Oesophagus 1
			Stomach 1
			Duodenum 1
			Ileum 1
			Jejunum 1
			Caecum 1
			Colon 1
			Rectum 1
			Mesenteric LN 1
			Aorta 1
			Adrenals 2
			Bronchial LN 1
			Ovaries 2
			F tubes 1
			Uterus 2
			Pituitary 1
			Bladder 1
			Skin 2
			Mammary Gl 1
			Eyes 2
			Brain 2
			Spinal cord 2
			Sternum 1
			Nares 1
			Sciatic nerve 1

Project No: 416877 Group : 1 Control
Animal No: 134 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	
	Liver	1
	Kidneys	2
	Perirenal fat	1
	Lungs	2
	Heart	1
	Spleen	1
	Thymus	1
	Muscle	1
	Salivary Gl	1
	SM Lymph N	1
	Pancreas	1
	Trachea	1
	Thyroids	1
	Parathyroids	1
	Oesophagus	1
	Stomach	1
	Duodenum	1
	Ileum	1
	Jejunum	1
	Caecum	1
	Colon	1
	Rectum	1
	Mesenteric LN	1
	Aorta	1
	Adrenals	2
	Bronchial LN	1
	Ovaries	2
	F tubes	2
	Uterus	1
	Pituitary	1
	Bladder	1
	Skin	1
	Mammary Gl	1
	Eyes	1
	Brain	1
	Spinal cord	1
	Sternum	1
	Nares	1
	Sciatic nerve	0

Project No: 416877 Group: 1 Control
Animal No: 135 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology
	NAD.

Number of Sections Examined	
	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
Cv. Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Ovaries	1
F tubes	1
Uterus	1
Pituitary	1
Bladder	1
Skin	2
Mammary Gl	2
Eyes	1
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	0

Project No: 416877 Group: 1 Control
Animal No: 136 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
	NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	2
Ovaries	2
F tubes	1
Uterus	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	2
Eyes	1
Brain	2
Spinal cord	2
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group : 1 Control
Animal No: 137 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
Eyes	Inflammatory reaction in cornea.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	3
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
CM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Ovaries	2
F tubes	2
Uterus	1
Pituitary	1
Bladder	1
Skin	2
Mammary Gl	1
Eyes	2
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 116877 Group: 1 Control
Animal No: 138 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	
		Liver 1
		Kidneys 2
		Perirenal fat 1
		Lungs 2
		Heart 1
		Spleen 1
		Thymus 1
		Muscle 1
		Salivary Gl 1
		SM Lymph N 1
		Pancreas 1
		Trachea 1
		Thyroids 1
		Parathyroids 1
		Oesophagus 1
		Stomach 1
		Duodenum 1
		Ileum 1
		Jejunum 1
		Caecum 1
		Colon 1
		Rectum 1
		Mesenteric LN 1
		Aorta 1
		Adrenals 2
		Bronchial LN 1
		Ovaries 2
		F tubes 1
		Uterus 1
		Pituitary 1
		Bladder 1
		Skin 1
		Mammary Gl 1
		Eyes 2
		Brain 3
		Spinal cord 2
		Sternum 1
		Nares 1
		Sciatic nerve 1

Project No: 416877 Group: 1 Control
Animal No: 139 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
Pancreas	Area acinar atrophy and lymphocyte infiltration.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
CM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	2
Ovaries	1
F tubes	1
Uterus	1
Pituitary	1
Bladder	1
Skin	2
Mammary Gl	2
Eyes	1
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group : 1 Control
Animal No: 140 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	
		Liver 1
		Kidneys 2
		Perirenal fat 1
		Lungs 2
		Heart 1
		Spleen 1
		Thymus 1
		Muscle 1
		Salivary Gl 1
		SM Lymph N 1
		Pancreas 1
		Trachea 1
		Thyroids 2
		Parathyroids 2
		Oesophagus 1
		Stomach 1
		Duodenum 1
		Ileum 1
		Jejunum 1
		Caecum 1
		Colon 1
		Rectum 1
		Mesenteric LN 1
		Aorta 1
		Adrenals 2
		Bronchial LN 1
		Ovaries 2
		F tubes 2
		Uterus 1
		Pituitary 1
		Bladder 1
		Skin 1
		Mammary Gl 2
		Eyes 2
		Brain 3
		Spinal cord 2
		Sternum 1
		Nares 1
		Sciatic nerve 0

Project No: 416877 Group: 2 10 mg HMX/kg/day
Animal No: 141 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined
NAD.		NAD.	HE
			Liver 2
			Kidneys 2
			Spleen 1
			Brain 3

Necropsy Findings
NAD.

Project No: 416877 Group: 2 10 mg HMX/kg/day
Animal No: 142 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group: 2 10 mg HMX/kg/day
Animal No: 143 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 2 10 mg HMX/kg/day

Animal No: 144 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
Brain	Cerebrum - 2 mid line cysts lined by stratified squamous epithelium, one containing keratin-like material, one containing cell debris and necrotic material.

Number of Sections Examined	
	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group: 2 10 mg HMX/kg/day

Animal No: 145 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology	Number of Sections Examined	HE
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group: 2 10 mg HMX/kg/day
Animal No: 146 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	
	Liver	2
	Kidneys	2
	Spleen	1
	Brain	3

Project No: 416877 Group: 2 10 mg HMX/kg/day
Animal No: 147 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3
Necropsy Findings				
NAD.				

Project No: 416877 Group: 2 10 mg HMX/kg/day

Animal No: 148 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	HE
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group: 2 10 mg HMX/kg/day

Animal No: 149 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
	NAD.

Number of Sections Examined	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group: 2 10 mg HMX/kg/day
Animal No: 150 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopatholcgy	Number of Sections Examined	HE
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group: 2 10 mg HMX/kg/day
Animal No: 151 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group: 2 10 mg HMX/kg/day
Animal No: 152 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
Tip of tail missing throughout study.

Necropsy Findings
NAD.

Sample	Histopathology
	NAD.

Number of Sections Examined	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group: 2 10 mg HMX/kg/day
Animal No: 153 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined
NAD.		NAD.	HE
			Liver 2
			Kidneys 2
			Spleen 1
			Brain 3

Necropsy Findings
NAD.

Project No: 416877 Group: 2 10 mg HMX/kg/day

Animal No: 154 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	
	Liver	2
	Kidneys	2
	Spleen	1
	Brain	3

Project No: 416877 Group: 2 10 mg HMX/kg/day
Animal No: 155 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group: 2 10 mg HMX/kg/day
Animal No: 156 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 2 10 mg HMX/kg/day
Animal No: 157 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group: 2 10 mg HMX/kg/day
Animal No: 158 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined
NAD.		NAD.	HE
			Liver 2
			Kidneys 2
			Spleen 1
			Brain 3

Necropsy Findings
NAD.

Project No: 416877 Group: 2 10 mg HMX/kg/day

Animal No: 159 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group: 2 10 mg HMX/kg/day

Animal No: 160 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	HE
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group: 3 30 mg HMX/kg/day

Animal No: 161 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

Tip of tail missing from week 6.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	NAD.	Liver	1
		Kidneys	2
		Perirenal fat	1
		Lungs	2
		Heart	1
		Spleen	1
		Thymus	1
		Muscle	1
		Salivary Gl	1
		SM Lymph N	1
		Pancreas	1
		Trachea	1
		Thyroids	2
		Parathyroids	0
		Oesophagus	1
		Stomach	1
		Duodenum	1
		Ileum	1
		Jejunum	1
		Caecum	1
		Colon	1
		Rectum	1
		Mesenteric LN	1
		Aorta	1
		Adrenals	2
		Bronchial LN	1
		Ovaries	2
		F tubes	2
		Uterus	1
		Pituitary	1
		Bladder	1
		Skin	1
		Mammary Gl	0
		Eyes	2
		Brain	3
		Spinal cord	2
		Sternum	1
		Nares	1
		Sciatic nerve	0

Project No: 416877 Group: 3 30 mg HMX/kg/day

Animal No: 162 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	
		Liver 2
		Kidneys 2
		Perirenal fat 1
		Lungs 2
		Heart 1
		Spleen 1
		Thymus 1
		Muscle 1
		Salivary Gl 1
		SM Lymph N 1
		Pancreas 1
		Trachea 1
		Thyroids 2
		Parathyroids 1
		Oesophagus 1
		Stomach 1
		Duodenum 1
		Ileum 1
		Jejunum 1
		Caecum 1
		Colon 1
		Rectum 1
		Mesenteric LN 1
		Aorta 1
		Adrenals 2
		Bronchial LN 2
		Ovaries 2
		F tubes 2
		Uterus 1
		Pituitary 1
		Bladder 1
		Skin 1
		Mammary Gl 1
		Eyes 1
		Brain 3
		Spinal cord 2
		Sternum 1
		Nares 1
		Sciatic nerve 2

Project No: 416877 Group: 3 30 mg HMX/kg/day

Animal No: 163 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	
	Liver	1
	Kidneys	2
	Perirenal fat	1
	Lungs	2
	Heart	1
	Spleen	1
	Thymus	1
	Muscle	1
	Salivary Gl	1
	CM Lymph N	1
	Pancreas	1
	Trachea	1
	Thyroids	2
	Parathyroids	2
	Oesophagus	1
	Stomach	1
	Duodenum	1
	Ileum	1
	Jejunum	1
	Caecum	1
	Colon	1
	Rectum	1
	Mesenteric LN	1
	Aorta	1
	Adrenals	2
	Bronchial LN	1
	Ovaries	2
	F tubes	2
	Uterus	1
	Pituitary	1
	Bladder	1
	Skin	1
	Mammary Gl	2
	Eyes	2
	Brain	3
	Spinal cord	2
	Sternum	1
	Nares	1
	Sciatic nerve	1

Project No: 416877 Group: 3 30 mg HMX/kg/day

Animal No: 164 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
	NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
CM Lymph N	1
Pancreas	1
Trachea	0
Thyroids	0
Parathyroids	0
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Ovaries	2
F tubes	2
Uterus	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	2
Brain	3
Spinal cord	2
Sternum	1
Nares	1
Sciatic nerve	0

Project No: 416877 Group: 3 30 mg HMX/kg/day
Animal No: 165 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.	Liver	Foci lymphocytes.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	0
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	0
Ovaries	2
F tubes	2
Uterus	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	2
Brain	3
Spinal cord	2
Sternum	0
Nares	1
Sciatic nerve	0

Project No: 416877 Group: 3 30 mg HMX/kg/day

Animal No: 166 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
Spinal Cord	Laminated cyst.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	2
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	0
Aorta	1
Adrenals	1
Bronchial LN	1
Ovaries	2
F tubes	2
Uterus	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	2
Brain	2
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	0

Project No: 416877 Group: 3 30 mg HMX/kg/day

Animal No: 167 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
CM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	2
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Ovaries	2
F tubes	2
Uterus	1
Pituitary	1
Bladder	1
Skin	2
Mammary Gl	2
Eyes	3
Brain	2
Spinal cord	1
Sternum	1
Nares	0
Sciatic nerve	

Project No: 116877 Group : 3 30 mg HMX/kg/day

Animal No: 168 Sex: ♀

Time on Study (weeks)	Death
6	FD

Clinical History	Sample	Histopathology
Head crushed by cage lid.	Brain	Haemorrhage in ventricles and fissure.

Necropsy Findings

Skull - space in cranium surrounding brain filled with clotted blood.

Number of Sections Examined	
	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Ovaries	2
F tubes	2
Uterus	1
Pituitary	1
Bladder	1
Skin	2
Mammary Gl	1
Eyes	2
Brain	3
Spinal cord	1
Sternum	1
Nares	2
Sciatic nerve	1

Project No: 416877 Group: 3 30 mg HMX/kg/day
Animal No: 169 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	3
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Ovaries	1
F tubes	1
Uterus	1
Pituitary	1
Bladder	1
Skin	2
Mammary Gl	1
Eyes	1
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 3 30 mg HMX/kg/day

Animal No: 170 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Ovaries	2
F tubes	2
Uterus	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	2
Brain	3
Spinal cord	2
Sternum	1
Nares	1
Sciatic nerve	2

Project No: 416877 Group: 3 30 mg HMX/kg/day
Animal No: 171 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined HE
	NAD.	
		Liver 1
		Kidneys 2
		Perirenal fat 1
		Lungs 2
		Heart 1
		Spleen 1
		Thymus 1
		Muscle 1
		Salivary Gl 1
		SM Lymph N 1
		Pancreas 1
		Trachea 1
		Thyroids 2
		Parathyroids 1
		Oesophagus 1
		Stomach 1
		Duodenum 1
		Ileum 1
		Jejunum 1
		Caecum 1
		Colon 1
		Rectum 1
		Mesenteric LN 1
		Aorta 1
		Adrenals 2
		Bronchial LN 1
		Ovaries 2
		F tubes 1
		Uterus 1
		Pituitary 1
		Bladder 1
		Skin 1
		Mammary Gl 2
		Eyes 2
		Brain 2
		Spinal cord 2
		Sternum 1
		Nares 1
		Sciatic nerve 1

Project No: 416877 Group: 3 30 mg HMX/kg/day
Animal No: 172 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	1
Bronchial LN	1
Ovaries	2
F tubes	1
Uterus	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	1
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	0

Project No: 416877 Group: 3 30 mg HMX/kg/day

Animal No: 173 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	
		Liver 1
		Kidneys 2
		Perirenal fat 1
		Lungs 2
		Heart 1
		Spleen 1
		Thymus 1
		Muscle 1
		Salivary Gl 1
		SM Lymph N 1
		Pancreas 1
		Trachea 1
		Thyroids 2
		Parathyroids 2
		Oesophagus 1
		Stomach 1
		Duodenum 1
		Ileum 1
		Jejunum 1
		Caecum 1
		Colon 1
		Rectum 1
		Mesenteric LN 1
		Aorta 1
		Adrenals 2
		Bronchial LN 1
		Ovaries 2
		F tubes 2
		Uterus 1
		Pituitary 1
		Bladder 1
		Skin 1
		Mammary Gl 1
		Eyes 2
		Brain 3
		Spinal cord 2
		Sternum 1
		Nares 1
		Sciatic nerve 1

Project No: 416877 Group: 3 30 mg HMX/kg/day

Animal No: 374 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Ovaries	2
F tubes	2
Uterus	1
Pituitary	1
Bladder	1
Skin	2
Mammary Gl	2
Eyes	0
Brain	0
Spinal cord	1
Sternum	1
Nares	
Sciatic nerve	

Project No: 416877 Group: 3 30 mg HMX/kg/day

Animal No: 175 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	0
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	0
Aorta	1
Adrenals	1
Bronchial LN	1
Ovaries	2
F tubes	2
Uterus	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	0
Eyes	2
Brain	3
Spinal cord	2
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 3 30 mg HMX/kg/day

Animal No: 176 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined HE
	NAD.	
		Liver 2
		Kidneys 2
		Perirenal fat 2
		Lungs 1
		Heart 1
		Spleen 1
		Thymus 1
		Muscle 1
		Salivary Gl 1
		SM Lymph N 1
		Pancreas 1
		Trachea 1
		Thyroids 1
		Parathyroid. 1
		Oesophagus 1
		Stomach 1
		Duodenum 1
		Ileum 1
		Jejunum 1
		Caecum 1
		Colon 1
		Rectum 1
		Mesenteric LN 1
		Aorta 1
		Adrenals 2
		Bronchial LN 2
		Ovaries 2
		F tubes 2
		Uterus 1
		Pituitary 1
		Bladder 1
		Skin 1
		Mammary Gl 2
		Eyes 2
		Brain 1
		Spinal cord 1
		Sternum 1
		Nares 1
		Sciatic nerve 1

Project No: 416877 Group: 3 30 mg HMX/kg/day

Animal No: 177 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.	Lungs	Area lymphocyte infiltration in interstitial tissue.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	1
Bronchial LN	1
Ovaries	1
F tubes	1
Uterus	1
Pituitary	1
Bladder	1
Skin	2
Mammary Gl	1
Eyes	1
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 3 30 mg HMX/kg/day

Animal No: 178 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	2
Kidneys	2
Perirenal fat	1
Lungs	1
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Ovaries	2
F tubes	2
Uterus	1
Pituitary	1
Bladder	1
Skin	2
Mammary Gl	1
Eyes	1
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 3 30 mg HMX/kg/day

Animal No: 179 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology
	NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
CM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Ovaries	2
F tubes	2
Uterus	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	2
Brain	3
Spinal cord	2
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 3 30 mg HMX/kg/day

Animal No: 180 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined		ME
Liver	1	
Kidneys	2	
Perirenal fat	1	
Lungs	2	
Heart	1	
Spleen	1	
Thymus	1	
Muscle	1	
Salivary Gl	1	
CM Lymph N	1	
Pancreas	1	
Trachea	1	
Thyroids	2	
Parathyroids	2	
Oesophagus	1	
Stomach	1	
Duodenum	1	
Ileum	1	
Jejunum	1	
Caecum	1	
Colon	1	
Rectum	1	
Mesenteric LN	1	
Aorta	1	
Adrenals	2	
Bronchial LN	1	
Ovaries	2	
F tubes	2	
Uterus	1	
Pituitary	1	
Bladder	1	
Skin	1	
Mammary Gl	1	
Eyes	2	
Brain	3	
Spinal cord	2	
Sternum	1	
Nares	1	
Sciatic nerve	1	

Project No: 416877 Group: 4 90 mg HMX/kg/day

Animal No: 181 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings

NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
CM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	2
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Ovaries	1
F tubes	1
Uterus	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	2
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 4 90 mg HMX/kg/day

Animal No: 182 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
Brain	Sub-meningeal cyst containing laminated material.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	1
Bronchial LN	1
Ovaries	2
F tubes	2
Uterus	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	2
Brain	3
Spinal cord	2
Sternum	1
Nares	1
Sciatic nerve	0

Project No: 416877 Group: 4 90 mg HMX/kg/day

Animal No: 183 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
	NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Ovaries	2
F tubes	2
Uterus	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	2
Eyes	2
Brain	3
Spinal cord	3
Sternum	1
Nares	1
Sciatic nerve	2

Project No: 116877 Group: 4 90 mg HMX/kg/day

Animal No: 184 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

	Number of Sections Examined	
		HE
Liver	1	1
Kidneys	2	2
Perirenal fat	1	1
Lungs	2	2
Heart	1	1
Spleen	1	1
Thymus	1	1
Muscle	1	1
Salivary Gl	1	1
SM Lymph N	1	1
Pancreas	1	1
Trachea	1	1
Thyroids	2	2
Parathyroids	1	1
Oesophagus	1	1
Stomach	1	1
Duodenum	1	1
Ileum	1	1
Jejunum	1	1
Caecum	1	1
Colon	1	1
Rectum	1	1
Mesenteric LN	1	1
Aorta	1	1
Adrenals	1	1
Bronchial LN	1	1
Ovaries	2	2
F tubes	2	2
Uterus	1	1
Pituitary	1	1
Bladder	1	1
Skin	1	1
Mammary Gl	2	2
Eyes	2	2
Brain	2	2
Spinal cord	2	2
Sternum	1	1
Nares	1	1
Sciatic nerve		

Project No: 416877 Group : 4 90 mg HMX/kg/day
Animal No: 185 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
Tip of tail missing from week 4.	Bladder	Slight congestion in lamina propria.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	2
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Ovaries	2
F tubes	2
Uterus	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	2
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	2

Project No: 416877 Group: 4 90 mg HMX/kg/day

Animal No: 186 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	Liver 1 Kidneys 2 Perirenal fat 1 Lungs 2 Heart 1 Spleen 1 Thymus 1 Muscle 1 Salivary Gl 1 SM Lymph N 1 Pancreas 1 Trachea 1 Thyroids 2 Parathyroids 1 Oesophagus 1 Stomach 1 Duodenum 1 Ileum 1 Jejunum 1 Caecum 1 Colon 1 Rectum 1 Mesenteric LN 1 Aorta 1 Adrenals 2 Bronchial LN 1 Ovaries 2 F tubes 1 Uterus 1 Pituitary 1 Bladder 1 Skin 2 Mammary Gl 2 Eyes 1 Brain 3 Spinal cord 1-2 Sternum 1 Nares 1 Sciatic nerve 1-2

Project No: 416877 Group : 4 90 mg HMX/kg/day

Animal No: 187 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	2
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Ovaries	2
F tubes	2
Uterus	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	2
Eyes	2
Brain	2
Spinal cord	2
Sternum	1
Nares	1
Sciatic nerve	2

Project No: 416877 Group: 4 90 mg HMX/kg/day
Animal No: 188 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

Right eye dry and half closed from Weeks 3-5, 7-13.

Right eye partially opaque from Weeks 6-8.

Necropsy Findings

Right eye sunken in orbit.

Sample	Histopathology
Eye	NAD. No tissue suitable for assessment.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	0
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	0
Ovaries	2
F tubes	2
Uterus	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	0
Eyes	1
Brain	2
Spinal cord	1
Sternum	1
Nares	0
Sciatic nerve	

Project No: 416877 Group: 4 90 mg HMX/kg/day

Animal No: 189 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
CM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	2
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	2
Ovaries	2
F tubes	2
Uterus	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	2
Eyes	3
Brain	2
Spinal cord	1
Sternum	1
Nares	0
Sciatic nerve	

Project No: 416877 Group: 4 90 mg HMX/kg/day
Animal No: 190 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	NAD.	Liver	1
		Kidneys	2
		Perirenal fat	1
		Lungs	2
		Heart	1
		Spleen	1
		Thymus	1
		Muscle	1
		Salivary Gl	1
		SM Lymph N	1
		Pancreas	1
		Trachea	1
		Thyroids	2
		Parathyroids	1
		Oesophagus	1
		Stomach	1
		Duodenum	1
		Ileum	1
		Jejunum	1
		Caecum	1
		Colon	1
		Rectum	1
		Mesenteric LN	1
		Aorta	1
		Adrenals	2
		Bronchial LN	1
		Ovaries	2
		F tubes	2
		Uterus	1
		Pituitary	1
		Bladder	1
		Skin	1
		Mammary Gl	1
		Eyes	2
		Brain	3
		Spinal cord	2
		Sternum	1
		Nares	1
		Sciatic nerve	2

Project No: 416877 Group: 4 90 mg HMX/kg/day
Animal No: 191 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined HE
	NAD.	
		Liver 1
		Kidneys 2
		Perirenal fat 1
		Lungs 2
		Heart 1
		Spleen 1
		Thymus 1
		Muscle 1
		Salivary Gl 1
		SM Lymph N 1
		Pancreas 1
		Trachea 1
		Thyroids 2
		Parathyroids 0
		Oesophagus 1
		Stomach 1
		Duodenum 1
		Ileum 1
		Jejunum 1
		Caecum 1
		Colon 1
		Rectum 1
		Mesenteric LN 1
		Aorta 1
		Adrenals 2
		Bronchial LN 0
		Ovaries 2
		F tubes 2
		Uterus 1
		Pituitary 1
		Bladder 1
		Skin 1
		Mammary Gl 0
		Eyes 2
		Brain 3
		Spinal cord 1
		Sternum 1
		Nares 1
		Sciatic nerve 2

Project No: 416877 Group: 4 90 mg HMX/kg/day

Animal No: 192 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined HE
	NAD.	
	Liver	1
	Kidneys	2
	Perirenal fat	1
	Lungs	2
	Heart	1
	Spleen	1
	Thymus	1
	Muscle	1
	Salivary Gl	1
	SM Lymph N	1
	Pancreas	1
	Trachea	1
	Thyroids	2
	Parathyroids	0
	Oesophagus	1
	Stomach	1
	Duodenum	1
	Ileum	1
	Jejunum	1
	Caecum	1
	Colon	1
	Rectum	1
	Mesenteric LN	1
	Aorta	1
	Adrenals	2
	Bronchial LN	0
	Ovaries	2
	F tubes	2
	Uterus	1
	Pituitary	1
	Bladder	1
	Skin	1
	Mammary Gl	1
	Eyes	2
	Brain	3
	Spinal cord	1
	Sternum	1
	Nares	1
	Sciatic nerve	1

Project No: 416877 Group: 4 90 mg HMX/kg/day

Animal No: 193 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	0
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	0
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	0
Ovaries	2
F tubes	0
Uterus	1
Pituitary	0
Bladder	1
Skin	1
Mammary Gl	1
Eyes	2
Brain	1
Spinal cord	2
Sternum	0
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 4 90 mg HMX/kg/day

Animal No: 194 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
	NAD.

Number of Sections Examined	HE
Liver	2
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	1
Parathyroids	1
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	2
Ovaries	2
F tubes	2
Uterus	2
Pituitary	1
Bladder	1
Skin	2
Mammary Gl	2
Eyes	2
Brain	2
Spinal cord	2
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group : 4 90 mg HMX/kg/day

Animal No: 195 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology
	NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	2
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	2
Ovaries	2
F tubes	2
Uterus	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	1
Eyes	2
Brain	3
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 4 90 mg HMX/kg/day
Animal No: 196 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	NAD.	Liver	1
		Kidneys	2
		Perirenal fat	0
		Lungs	2
		Heart	1
		Spleen	1
		Thymus	1
		Muscle	1
		Salivary Gl	1
		SM Lymph N	1
		Pancreas	1
		Trachea	1
		Thyroids	2
		Parathyroids	0
		Oesophagus	1
		Stomach	1
		Duodenum	1
		Ileum	1
		Jejunum	1
		Caecum	1
		Colon	1
		Rectum	1
		Mesenteric LN	1
		Aorta	1
		Adrenals	1
		Bronchial LN	1
		Ovaries	2
		F tubes	1
		Uterus	1
		Pituitary	1
		Bladder	1
		Skin	1
		Mammary Gl	1
		Eyes	1
		Brain	3
		Spinal cord	2
		Sternum	1
		Nares	1
		Sciatic nerve	0

Project No: 416877 Group: 4 90 mg HMX/kg/day

Animal No: 197 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	1
Kidneys	2
Perirenal fat	1
Lungs	2
Heart	1
Spleen	1
Thymus	1
Muscle	1
Salivary Gl	1
SM Lymph N	1
Pancreas	1
Trachea	1
Thyroids	2
Parathyroids	2
Oesophagus	1
Stomach	1
Duodenum	1
Ileum	1
Jejunum	1
Caecum	1
Colon	1
Rectum	1
Mesenteric LN	1
Aorta	1
Adrenals	2
Bronchial LN	1
Ovaries	2
F tubes	2
Uterus	1
Pituitary	1
Bladder	1
Skin	1
Mammary Gl	2
Eyes	2
Brain	1
Spinal cord	1
Sternum	1
Nares	1
Sciatic nerve	1

Project No: 416877 Group: 4 90 mg HMX/kg/day

Animal No: 198 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	
	Liver	1
	Kidneys	2
	Perirenal fat	0
	Lungs	2
	Heart	1
	Spleen	1
	Thymus	1
	Muscle	1
	Salivary Gl	1
	SM Lymph N	1
	Pancreas	1
	Trachea	1
	Thyroids	2
	Parathyroids	2
	Oesophagus	1
	Stomach	1
	Duodenum	1
	Ileum	1
	Jejunum	1
	Caecum	1
	Colon	1
	Rectum	1
	Mesenteric LN	1
	Aorta	1
	Adrenals	2
	Bronchial LN	1
	Ovaries	2
	F tubes	2
	Uterus	1
	Pituitary	1
	Bladder	1
	Skin	1
	Mammary Gl	1
	Eyes	0
	Brain	3
	Spinal cord	1
	Sternum	1
	Nares	1
	Sciatic nerve	0

Project No: 416877 Group: 4 90 mg HMX/kg/day

Animal No: 199 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	NAD.	Liver	1
		Kidneys	2
		Perirenal fat	1
		Lungs	2
		Heart	1
		Spleen	1
		Thymus	1
		Muscle	1
		Salivary Gl	1
		SM Lymph N	1
		Pancreas	1
		Trachea	1
		Thyroids	2
		Parathyroids	1
		Oesophagus	1
		Stomach	1
		Duodenum	1
		Ileum	1
		Jejunum	1
		Caecum	1
		Colon	1
		Rectum	1
		Mesenteric LN	1
		Aorta	1
		Adrenals	2
		Bronchial LN	1
		Ovaries	2
		F tubes	2
		Uterus	1
		Pituitary	1
		Bladder	1
		Skin	1
		Mammary Gl	0
		Eyes	2
		Brain	3
		Spinal cord	2
		Sternum	1
		Nares	1
		Sciatic nerve	0

Project No: 416877 Group: 4 90 mg HMX/kg/day

Animal No: 200 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: HE
	NAD.	
		Liver 1
		Kidneys 2
		Perirenal fat 1
		Lungs 2
		Heart 1
		Spleen 1
		Thymus 1
		Muscle 1
		Salivary Gl 1
		SM Lymph N 1
		Pancreas 1
		Trachea 1
		Thyroids 2
		Parathyroids 0
		Oesophagus 1
		Stomach 1
		Duodenum 1
		Ileum 1
		Jejunum 1
		Caecum 1
		Colon 1
		Rectum 1
		Mesenteric LN 1
		Aorta 1
		Adrenals 2
		Bronchial LN 1
		Ovaries 2
		F tubes 2
		Uterus 1
		Pituitary 1
		Bladder 1
		Skin 1
		Mammary Gl 1
		Eyes 1
		Brain 3
		Spinal cord 2
		Sternum 1
		Nares 1
		Sciatic nerve 0

Project No: 416877 Group : 5 250 mg HMX/kg/day

Animal No: 201 Sex: ♀

Time on Study (weeks)	Death
10	FD

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group : 5 250 mg HMX/kg/day

Animal No: 202 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology	Number of Sections Examined	HE
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group : 5 250 mg HMX/kg/day

Animal No: 203 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology	Number of Sections Examined	HE
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group : 5 250 mg HMX/kg/day

Animal No: 204 Sex: ♀

Time on Study (weeks)	Death
12	FD

Clinical History
NAD.

Necropsy Findings
Lungs dark red. Adrenals slightly enlarged and pink.

Sample	Histopathology
	NAD.
Lungs/Adrenals	Not examined.

Number of Sections Examined	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group : 5 250 mg HMX/kg/day
Animal No: 205 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
	NAD.

Number of Sections Examined	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group : 5 250 mg HMX/kg/day

Animal No: 206 Sex: ♀

Time on Study (weeks)	Death
10	FD

Clinical History	Sample	Histopathology	Number of Sections Examined HE
NAD.		NAD.	Liver 2 Kidneys 2 Spleen 1 Brain 3

Necropsy Findings
NAD.

Project No: 416877 Group : 5 250 mg HMX/kg/day

Animal No: 207 Sex: ♀

Time on Study (weeks)	Death
4	FD

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	H&E
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group : 5 250 mg HMX/kg/day

Animal No: 208 Sex: ♀

Time on Study (weeks)	Death
9	FD

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group : 5 250 mg HMX/kg/day

Animal No: 209 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group : 5 250 mg HMX/kg/day

Animal No: 210 Sex: ♀

Time on Study (weeks)	Death
10	FD

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	HE
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group : 5 250 mg HMX/kg/day

Animal No: 211 Sex: ♀

Time on Study (weeks)	Death
3	FD

Clinical History

Skull crushed by cage lid.

Necropsy Findings

Skull crushed.

Liver - edge of left lobe pale (10 mm x 5 mm).

Brain - autolysed and too soft to be removed for weighing.

Sample	Histopathology	Number of Sections Examined	HE
	Tissues autolytic.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group : 5 250 mg HMX/kg/day

Animal No: 212 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
Liver	Foci lymphocytes and polymorphs.

Number of Sections Examined	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group : 5 250 mg HMX/kg/day

Animal No: 213 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group : 5 250 mg HMX/kg/day

Animal No: 214 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology	Number of Sections Examined	HE
	NAD.	Liver	2
		Kidneys	2
		Spleen	2
		Brain	3

Project No: 416877 Group : 5 250 mg HMX/kg/day

Animal No: 215 Sex: ♀

Time on Study (weeks)	Death
8	KIE

Clinical History

Leapt from cage and ran around floor for approximately 15 minutes before collapsing, gasping and convulsing.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	HE
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group : 5 250 mg HMX/kg/day

Animal No: 216 Sex: ♀

Time on Study (weeks)	Death
10	FD

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined: H&E
	NAD.	
	Liver	2
	Kidneys	2
	Spleen	1
	Brain	3

Project No: 416877 Group : 5 250 mg HMX/kg/day
Animal No: 217 Sex: ♀

Time on Study (weeks)	Death
10	FD

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology
	NAD.

Number of Sections Examined	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group : 5 250 mg HMX/kg/day

Animal No: 218 Sex: ♀

Time on Study (weeks)	Death
9	FD

Clinical History	Sample	Histopathology	Number of Sections Examined
			HE
NAD.		NAD.	Liver 2
			Kidneys 2
			Spleen 1
			Brain 3

Necropsy Findings
NAD.

Project No: 416877 Group : 5 250 mg HMX/kg/day

Animal No: 219 Sex: ♀

Time on Study (weeks)	Death
11	FD

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined	
			HE
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group : 5 250 mg HMX/kg/day

Animal No: 220 Sex: ♀

Time on Study (weeks)	Death
14	TK

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology	Number of Sections Examined	HE
	NAD.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group : 6 750 mg HMX/kg/day

Animal No: 221 Sex: ♀

Time on Study (weeks)	Death
2	FD

Clinical History

NAD.

Necropsy Findings

Lungs dark red.

Sample	Histopathology
Liver	Not examined.

Number of Sections Examined	
	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group: 6 750 mg HMX/kg/day

Animal No: 222 Sex: ♀

Time on Study (weeks)	Death
7	FD

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	
	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group : 6 750 mg HMX/kg/day

Animal No: 223 Sex: ♀

Time on Study (weeks)	Death
13	FD

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.	Lungs	Not examined.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
Lungs dark red with several 1-2 mm white foci on all lobes.

Project No: 416877 Group : 6 750 mg HMX/kg/day

Animal No: 224 Sex: ♀

Time on Study (weeks)	Death
3	FD

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group : 6 750 mg HMX/kg/day

Animal No: 225 Sex: ♀

Time on Study (weeks)	Death
13	FD

Clinical History

NAD.

Necropsy Findings

Liver pale.

Lungs dark red.

Sample	Histopathology
Liver	NAD but autolytic change.
Lungs	Not examined.

Number of Sections Examined	NE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group : 6 750 mg HMX/kg/day

Animal No: 226 Sex: ♀

Time on Study (weeks)	Death
1	FD

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group : 6 750 mg HMX/kg/day

Animal No: 227 Sex: ♀

Time on Study (weeks)	Death
2	FD

Clinical History
NAD.

Necropsy Findings
NAD.

Sample	Histopathology	Number of Sections Examined
		HE
	Liver	2
	Kidneys	2
	Spleen	1
	Brain	3

NAD.

Project No: 416877 Group : 6 750 mg HMX/kg/day
Animal No: 228 Sex: ♀

Time on Study (weeks)	Death
10	FD

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group : 6 750 mg HMX/kg/day

Animal No: 229 Sex: ♀

Time on Study (weeks)	Death
2	FD

Clinical History

NAD.

Necropsy Findings

Lungs dark red.

Sample	Histopathology
Lungs	Not examined.

Number of Sections Examined	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group : 6 750 mg HMX/kg/day

Animal No: 230 Sex: ♀

Time on Study (weeks)	Death
3	FD

Clinical History
NAD.

Necropsy Findings
Lungs slightly redder than normal.

Sample	Histopathology
Lungs	Not examined.

Number of Sections Examined	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group : 6 750 mg HMX/kg/day

Animal No: 231 Sex: ♀

Time on Study (weeks)	Death
3	FD

Clinical History
NAD.

Necropsy Findings
Lungs dark red.

Sample	Histopathology
Lungs	Not examined.

Number of Sections Examined	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group : 6 750 mg HMX/kg/day

Animal No: 232 Sex: ♀

Time on Study (weeks)	Death
9	FD

Clinical History

NAD.

Necropsy Findings

Lungs dark red.

Sample	Histopathology	Number of Sections Examined	HE
Lungs	Not examined.	Liver	2
		Kidneys	2
		Spleen	1
		Brain	3

Project No: 416877 Group : 6 750 mg HMX/kg/day

Animal No: 233 Sex: ♀

Time on Study (weeks)	Death
2	FD

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined	
	ME
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group : 6 750 mg HMX/kg/day

Animal No: 234 Sex: ♀

Time on Study (weeks)	Death
2	FD

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.	Brain	Focus of non-suppurative cuffing.	Liver	2
			Kidneys	2
			Spleen	1
			Brain	3

Necropsy Findings
NAD.

Project No: 416877 Group : 6 750 mg HMX/kg/day

Animal No: 235 Sex: ♀

Time on Study (weeks)	Death
9	FD

Clinical History

NAD.

Necropsy Findings

NAD.

Sample	Histopathology	Number of Sections Examined
	NAD.	HE
		Liver 2
		Kidneys 2
		Spleen 1
		Brain 3

Project No: 416877 Group : 6 750 mg HMX/kg/day

Animal No: 236 Sex: ♀

Time on Study (weeks)	Death
9	FD

Clinical History
NAD.

Necropsy Findings
Lungs dark red.

Sample	Histopathology
Lungs	Not examined.

Number of Sections Examined	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group : 6 750 mg HMX/kg/day
Animal No: 237 Sex: ♀

Time on Study (weeks)	Death
3	FD

Clinical History	Sample	Histopathology
NAD.		NAD.

Necropsy Findings
NAD.

Number of Sections Examined		ME
Liver		2
Kidneys		2
Spleen		1
Brain		3

Project No: 416877 Group : 6 750 mg HMX/kg/day

Animal No: 238 Sex: ♀

Time on Study (weeks)	Death
7	FD

Clinical History	Sample	Histopathology	Number of Sections Examined
NAD.		NAD.	HE
			Liver 2
			Kidneys 2
			Spleen 1
			Brain 3

Necropsy Findings
NAD.

Project No: 416877 Group : 6 750 mg HMX/kg/day
Animal No: 239 Sex: ♀

Time on Study (weeks)	Death
13	FD

Clinical History
NAD.

Necropsy Findings
Lungs dark red.

Sample	Histopathology
Lungs	Not examined.

Number of Sections Examined	HE
Liver	2
Kidneys	2
Spleen	1
Brain	3

Project No: 416877 Group : 6 750 mg HMX/kg/day

Animal No: 240 Sex: ♀

Time on Study (weeks)	Death
1	FD

Clinical History	Sample	Histopathology	Number of Sections Examined	
				HE
NAD.		NAD.	Liver	2
			Kidneys	2
			Spleen	0
			Brain	3

Necropsy Findings
NAD.

APPENDIX 14

HMX: 13 Week Toxicity Study in Mice
Methodology of Diet Analysis

Materials

1,3 Dinitrobenzene (Organic Analytical Standard Grade), BDH Chemicals Limited, Poole.

Acetonitrile (HPLC Grade), Rathburn Chemicals Limited, Walkerburn, Scotland.

Method

A suitable weight of diet (2.5 g or 5 g) was weighed accurately into a clean glass 8 oz jar. To this was added 1 ml of internal standard solution (dinitrobenzene in acetonitrile at a suitable concentration) and 50 ml of acetonitrile as extracting solvent. The jars were shaken mechanically for 1 h then left to settle, preferably overnight. A suitable aliquot was transferred to a sample vial and analysed by HPLC.

Standard solutions of HMX were prepared by adding a known amount of HMX (equivalent to that of the group being analysed) to a sample of untreated diet. These were treated with internal standard solution and extracting solvent as described for the formulated diet samples.

Three quality control samples were included with each batch of test samples and standards. For this purpose a solution of HMX in acetonitrile was prepared by an independent analyst and these solutions used by the analyst to spike blank samples in exactly the same way as the standards.

HPLC Conditions

Instrument:	Hewlett Packard 1084B with variable wavelength detector and automatic sampler.
Column:	100 x 5 mm stainless steel packed with ODS Hypersil (5 μ).
Solvent:	Acetonitrile: Water (40:60 v/v).
Flow:	1.5 ml/min.
Oven Temperature:	40°C.
Wavelength:	228 nm.
Attenuation:	2^{5} - 2^{8}.
Chart Speed:	0.5 cm/min.

APPENDIX 15

Methods and Units used in Laboratory Investigations

Haematology

Parameters	Method	Units
Haemoglobin: (Hb)	Drabkin, D.L. and Austin, J.H. J. Biol. Chem., 98, 719, (1932).	g/dl
Total Red Blood Cell Count: (RBC)	Coulter Counter, Coulter Electronics Ltd.	x 10^{12}/l
Packed Cell Volume: (PCV)	Modified Strumia, M.M. et al, Amer. J. Path., 24, 1016, (1954).	%
Absolute Values:		
Mean Cell Volume: (MCV)		fl
Mean Cell Haemoglobin: (MCH)	Haematological Slide Rule	pg
Mean Cell Haemoglobin Concentration: (MCHC)		g/dl
Reticulocyte Count:	Visual appraisal using new methylene blue vital staining.	%
Total White Blood Cell Count: (WBC)	Coulter Counter, Coulter Electronics Ltd.	x 10^{9}/l
Differential White Cell Count:	Visual appraisal of stained film. (May-Grunwald and Giemsa Stain.)	x 10^{9}/l
Heinz Bodies:	Visual appraisal using methyl violet staining.	

APPENDIX 15 (continued)

Clinical Chemistry

Parameters	Method	Units
Urea: (BUN)	Karmen, A., J. Clin. Invest., 34, 131, (1955). Adapted for centrifugal analysis.	mmol/l
Glucose:	Barthelmai, W. and Czok, R., Klin. Wochschr., 40, 585, (1962).	mmol/l
Aspartate Transaminase: (GOT) or (AST)	Enzyme Commission of the German Society for Clinical Chemistry. Z. Klin. Chem. Klin. Biochem., 10, 281, (1972). Adapted for centrifugal analysis.	IU/l
Alanine Transaminase: (GPT) or (ALT)	Enzyme Commission of the German Society for Clinical Chemistry. Z. Klin. Chem. Klin. Biochem. 10, 281, (1972). Adapted for centrifugal analysis.	IU/l
Lactate Dehydrogenase: (LDH)	Enzyme Commission of the German Society for Clinical Chemistry. Z. Klin. Chem. Klin. Biochem., 10, Jg., 281-291, (1972). Adapted for centrifugal analysis.	IU/l
Sodium: (Na)	I.L. flame photometer	mmol/l
Potassium: (K)	I.L. flame photometer	mmol/l
Total Protein:	Henry, R.J., Sobel, C. and Berkman, S., Anal. Chem., 29, 1491, (1957). Adapted for centrifugal analysis.	g/l
Albumin:	Rodkey, F.L., Clin. Chem., 11, 478, (1965); Dow, D. and Pinto, P.V.C., Clin. Chem., 15, 1006, (1969).	g/l
Alkaline Phosphatase: (AP)	Enzyme Commission of the German Society for Clinical Chemistry. Z. Klin. Chem. Klin. Biochem., 10, 251, (1972). Adapted for centrifugal analysis.	IU/l

APPENDIX 15 (continued)

Urinalysis

Parameter	Method
pH:	Boehringer BM8 Test Strips
Specific Gravity:	Refractometer
Protein:	Boehringer BM8 Test Strips
Glucose:	Boehringer BM8 Test Strips
Ketones:	Boehringer BM8 Test Strips
Blood:	Boehringer BM8 Test Strips
Bilirubin:	Boehringer BM8 Test Strips
Urobilinogen:	Boehringer Test Strips
Microscopy:	Urine samples centrifuged at 1,000 rpm for 10 min and spun deposit examined for: epithelial cells (E) crystals (CR) white blood cells (W) erythrocytes (R) organisms (O) casts (C) abnormal constituents (A) For the sake of clarity only the initials E, CR, W, R, O, C and A are used in the tables of results. NB Scoring for qualitative urine tests is: 0 = negative 1 = trace amount 2 = small amount 3 = large amount
Colours:	PY = pale yellow GRY = greenish yellow LY = lemon yellow

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