

AD-A219 964

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.			
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE 13 Mar 90	3. REPORT TYPE AND DATES COVERED FINAL 01 May 86 to 30 Apr 89	
4. TITLE AND SUBTITLE NEUROTRANSMITTER AND PEPTIDE LOCALIZATION IN HUMAN BRAIN		5. FUNDING NUMBERS G - AFOSR-86-0176 PE - 61102F PR - 2312 TA - A2	
6. AUTHOR(S) Dr Victoria Chan-Palay		7. PERFORMING ORGANIZATION REPORT NUMBER AFOSR-TR-86-0358	
8. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Dr Chan-Palay Universitatsspital Zurich Neurologische Klinik und Poliklinik Frauenklinikstrasse 26, 8091 Zurich SWITZERLAND		9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) WILLIAM O BERRY AFOSR/NL Building 410 Bolling AFB, DC 20332	
10. SPONSORING / MONITORING AGENCY REPORT NUMBER AFOSR-86-0176		11. SUPPLEMENTARY NOTES	
12a. DISTRIBUTION / AVAILABILITY STATEMENT unlimited		12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) Studies utilizing human brain tissue examined the colocalization of neurotransmitters using immunocytochemical and in vitro hybridization techniques. Results have shown the coexistence of somatostatin and neuropeptide Y in the hippocampus, and galanin and acetylcholine in the human forebrain. <i>Neurotransmitters</i>			
14. SUBJECT TERMS		15. NUMBER OF PAGES	
17. SECURITY CLASSIFICATION OF REPORT		18. PRICE CODE	
19. SECURITY CLASSIFICATION OF THIS PAGE		20. SECURITY CLASSIFICATION OF ABSTRACT	
21. LIMITATION OF ABSTRACT		22. LIMITATION OF ABSTRACT	

DTIC
ELECTE
MAR 29 1990
S E D



Universitätsspital Zürich
Neurologische Klinik und Poliklinik

Direktion: Prof. G. Baumgartner

Frauenklinikstrasse 26. 8091 Zurich
Telefon 01 255 1111

Report from:

Victoria Chan-Palay
Neurology Clinic
University Hospital
Zürich, Switzerland CH-8091

Unser Zeichen:

Ihr Zeichen:

Zürich,

March 6 1990

Reference: Grant Life Sciences: ASFOR-86-0176

Title: Neurotransmitter and peptide localizations and
coexistence in human brain

Final Scientific Report: Period May 1, 1988 - April 30, 1989

The research program that we have carried out during this 12 month period follows closely the plan and sequence of experiments laid out in the original grant application. We have streamlined our protocols for the collection of human brain slices from 1) patients at neurosurgical procedures necessitating the removal of brain material as part of the operation in areas perifocal to the region of trauma or injury and collected in the operating theater with delays of 5-10 minutes and 2) patients without previous history of neurological disease at postmortem within 3 hours of death. All material is subsequently verified to be non-pathological prior to experimental use. These materials are unique and we have tried to make the best use of them in our experimental protocols. In the 12 month period of this scientific report we collected 46 usable surgical biopsies from a total of 50 operations - 8 specimens were not usable. A total of 47 good postmortem brains was also collected. This represents a considerable collecting effort and sufficient material for the experimental program, as we had planned.

The main directions of the research program have been:

I) Immunocytochemical studies with antibodies against neurotransmitters or neuroactive peptides for localizing the peptides somatostatin, neuropeptide Y, and galanin; acetylcholine (using anti-choline acetyltransferase), and tyrosine hydroxylase (for the catecholamines); and for establishing the case for multiple coexistence of neuroactive substances in the human neurons. The results of these studies

have been published in the series of papers under List of Publications 1988-1989.

II) In vitro hybridization studies using the human gene for neuropeptide Y in order to establish the necessary methods applicable to human brain material to demonstrate that single neurons contain the gene and are capable of transcription of the message for the synthesis of neuropeptide Y, (see Publication List) and that both the transcription process and the storage of the neuropeptide are present in the same individual neurons of the human brain. These studies are unique in that they have applied techniques in the thrust area of molecular neurobiology for the first time to human neurons.

III) In addition, an edited book entitled "The Hippocampus": New Vistas (558 pages) has been published in which I am first editor which summarizes many of our studies reported here and supported by ASFOR.

The laboratory has run well, the projects have produced significant results for neurotransmitter work with integrative approaches of neurobiology and molecular biology for studying a unique brain system in man. The ASFOR support has been crucial for our continuation and our successes. We thank you for your support.

Victoria Chan-Palay, MD, PhD

Victoria Chan-Palay
Principal Investigator

Accession For	
NTIS GRA&I	☒
DTIC TAB	☐
Unannounced	☐
Justification	
By	
Distribution/	
Availability Code	
Dist	Avail and/or Special
A-1	

PUBLICATIONS 1988 AND 1989

Book:

Chan-Palay V. and Köhler C. (Eds.).

The Hippocampus: New Vistas, 558 pages

Alan R. Liss Publishers, New York 1980

ORIGINAL PAPERS

1. Chan-Palay, V. Somatostatin and Neuropeptide Y Coexistence in the Hippocampus and Alteration in Alzheimer's Disease. In: Neurosecretion: Cellular Aspects of the Production and Release of Neuropeptides Eds. B.T. Pickering A.J.S. Summerlee and J.B. Waverley, Plenum Press pp 89 - 97 1988.
2. Chan-Palay, V., G. Yasargil, Q. Hamid J.M. Polak and S.L. Palay Simultaneous demonstrations of neuropeptide Y gene expression and peptide storage in single neurons of the human brain. Proc. Natl. Acad Sci (USA) 85: 3213 - 3215 1988.
3. Chan-Palay, V. Neurons with Galanin innervate cholinergic cells in the human basal forebrain and galanin and acetylcholine coexist. Brain Research Bulletin 21: 465-472, 1988.
4. Chan-Palay, V. Techniques for the simultaneous demonstration of neuropeptide Y gene expression and peptide storage in single neurons of the human brain. Histochemistry 90:123-127, 1988.
5. Köhler, C. and Chan-Palay, V. Cholecystokinin-octapeptide CCK-8 receptors in the hippocampal region: A comparative in vitro

autoradiographic study in the monkey and postmortem human brain. *Neurosci. Lett.* 90 (1-2):51-56, 1988.

6. Chan-Palay, V. Galanin hyperinnervates surviving neurons of the human basal nucleus of Meynert in dementias of Alzheimer's and Parkinson's disease: A hypothesis for the role of galanin in accentuating cholinergic dysfunction in dementia. *J. Comp. Neurol.* 273:543-557, 1988.
7. Chan-Palay, V. Simultaneous demonstrations of neuropeptide Y gene expression and peptide storage in single hippocampal neurons of the human brain. In: *The Hippocampus: New vistas* V. Chan-Palay and C. Köhler (Eds.), *Neurology and Neurobiology Series*, Alan R. Liss, Inc., New York, pp. 145-151, 1989.
8. Chan-Palay, W. Localisation of neuropeptide Y by immunochemistry and in vitro hybridisation in human brain. *Verh. Anat. Ges.* 82 (Anat. Anz. Suppl. 164 -), Gustav Fischer Verlag, Jena 1989.
9. Chan-Palay, V. and Asan E. Quantitation of catecholamine neurons in the locus coeruleus in human brains of normal young and older adults and in depression. *J. Comp. Neurol.* 287:357-372, 1989.
10. Chan-Palay, V., Jentsch, B., Lang, W., and Asan E. Distribution of neuropeptide Y (NPY), C-terminal flanking peptide of NPY (C-PON), and galanin and coexistence with catecholamines in the

locus coeruleus of normal human, Alzheimer's dementia, and Parkinson's disease brains. Dementia in press, 1990.

11. Köhler, C. and Chan-Palay, V. Neuropeptide receptors in the hippocampal region, in rat, monkey, and human brain. The Hippocampus: New Vistas, V. Chan-Palay and C. Köhler (Eds.), Neurology and Neurobiology Series, Alan R. Liss, Inc. New York, pp. 189-204, 1989.