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GORDON RESEARCH CONFERENCE ON ION CHENNELS IN MUSCLE  
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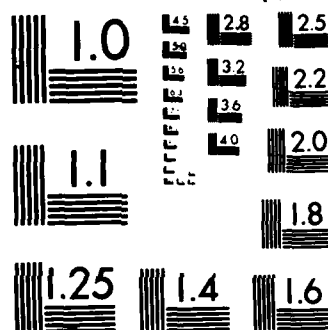
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Approximately 25% of the participants were from abroad, and the affiliations of the participants represented a good mix from Academia and Industry. A particular effort was made to include women and young scientists among the participants; there were 19 graduate students, 44 postdoctoral fellows, and 31 women among the attendees.

It was clear from the caliber and intensity of the discussions that many new ideas and concepts came out of the conference. The rapidly emerging area of ion channel modulation received a major boost from this conference.

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1986 Gordon Research Conference on  
Ion Channels in Muscle and Other Excitable Membranes

Final Progress Report

Department of the Army Grant No. DAAL03-86-G-0121

The Gordon Research Conference on Ion Channels in Muscle and Other Excitable Membranes was held from August 4 - 8, 1986 at the New Hampton School, New Hampton, New Hampshire. The conference had 150 participants, the maximum which the Gordon Conference facilities would permit, but there were more than 220 applications from all over the world. Approximately 25% of the participants were from abroad, and the affiliations of the participants represented a good mix from Academia and Industry. A particular effort was made to include women and young scientists among the participants; there were 19 graduate students, 44 postdoctoral fellows, and 31 women among the attendees.

The program represented a departure from previous Gordon Conferences in this series, in that the sessions were not divided on the basis of particular channel types, but rather on the basis of themes common to all ion channels. This represented an effort to define mechanisms of channel regulation which are relevant to all ion channels, and it was highly successful. Virtually all of the speakers adhered to the chairman's guidelines in presenting new data rather than previously published work, and it was clear from the caliber and intensity of the discussions that many new ideas and concepts came out of the conference. The rapidly emerging area of ion channel modulation received a major boost from this conference, and there is no question that it will continue to be an important theme in future conferences in this series.

More than 40 of the participants indicated a desire to present posters at the conference, necessitating the organization of 4 poster sessions rather than the single one which had been anticipated. The posters were extremely well attended, and discussions around them were lively throughout. Participants' comments in response to the Gordon Conference questionnaire were uniformly positive, and there is no question that the conference was highly successful.

A copy of the program and registration list are appended.

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GORDON RESEARCH CONFERENCE

Ion Channels in Muscle and Other Excitable Membranes

New Hampton School (New Hampton)

Irwin B. Levitan -- Chairman  
Richard Horn -- Vice Chairman

August 4-8, 1986

Monday, August 4, 1986

Morning Conduction and Gating Mechanisms in Ion Channels

R. Horn -- Discussion Leader

|            |                       |                                     |
|------------|-----------------------|-------------------------------------|
| 9:00 AM    | J. Patlak             | Sodium channel gating               |
| 9:40 AM    | O. Andersen           | Conduction through sodium channels  |
| 10:20 AM   | Coffee                |                                     |
| 10:40 AM   | P. Hess               | Conduction through calcium channels |
| 11:20 AM   | F. Sigworth           | Open channel noise                  |
| 12:00 Noon | Conference Photograph |                                     |

Evening Channel Development, Distribution and Domains

R. Zucker -- Discussion Leader

|         |           |                                                                       |
|---------|-----------|-----------------------------------------------------------------------|
| 7:30 PM | W. Almers | Mobility and distribution of voltage-dependent ion channels in muscle |
| 8:10 PM | R. Weiss  | Sodium channels in developing muscle                                  |
| 8:50 PM | Break     |                                                                       |
| 9:00 PM | J. Chad   | Domains around calcium channels                                       |
| 9:40 PM | R. Zucker | Synaptic implications of calcium domains                              |

Tuesday, August 5, 1986

Morning Channel Modulation, I

L. Kaczmarek -- Discussion Leader

- |          |              |                                                                                |
|----------|--------------|--------------------------------------------------------------------------------|
| 9:00 AM  | O. Krishtal  | Excitatory amino acid receptors in CNS: concentration clamp approach.          |
| 9:35 AM  | R. Huganir   | Regulation of the nicotinic acetylcholine receptor by protein phosphorylation. |
| 10:10 AM | F. Bezanilla | Modulation of squid axon potassium current.                                    |
| 10:45 AM | Coffee       |                                                                                |
| 11:00 AM | R. Tsien     | Modulation of cardiac and neuronal calcium channels.                           |
| 11:35 AM | J. Strong    | Regulation of neuronal calcium channels by protein kinases.                    |

Evening Genetic Approaches to Channel Regulation

W. Catterall -- Discussion Leader

- |         |            |                                          |
|---------|------------|------------------------------------------|
| 7:30 PM | R. Aldrich | Potassium channel mutants in Drosophila. |
| 8:10 PM | C. Kung    | Ion channels in lower organisms.         |
| 8:50 PM | Break      |                                          |

Cell-to-Cell Channels

R. Horn -- Discussion Leader

- |         |                |                                                                  |
|---------|----------------|------------------------------------------------------------------|
| 9:00 PM | J. Hall        | Reconstitution of lens-junction channels.                        |
| 9:40 PM | W. Loewenstein | Regulation of cell-to-cell channels by cellular phosphorylation. |

Wednesday, August 6, 1986

Morning Channels and Secretion

D. Cook -- Discussion Leader

|          |             |                                                                         |
|----------|-------------|-------------------------------------------------------------------------|
| 9:00 AM  | D. Cook     | Potassium channels in pancreas                                          |
| 9:40 AM  | J. Lemos    | Channels in neurosecretory terminals                                    |
| 10:20 AM | Coffee      |                                                                         |
| 10:40 AM | E. Neher    | Mast cell degranulation                                                 |
| 11:20 AM | O. Petersen | Messenger-mediated control of K <sup>+</sup> channels<br>in gland cells |

Evening Molecular Biology of Ion Channels

C. Kung -- Discussion Leader

|         |                 |                                                    |
|---------|-----------------|----------------------------------------------------|
| 7:30 PM | H. Lester       | Receptors and ion channels expressed in<br>oocytes |
| 8:10 PM | W. Catterall    | Molecular analysis of sodium channel<br>function   |
| 8:50 PM | Break           |                                                    |
| 9:00 PM | H. Betz         | The glycine receptor/channel                       |
| 9:40 PM | F.A. Stephenson | The GABA receptor/channel                          |

Thursday, August 7, 1986

Morning Channels and Transduction Mechanisms.

J. Lisman -- Discussion Leader

|          |                |                                                                        |
|----------|----------------|------------------------------------------------------------------------|
| 9:00 AM  | J. Brown       | Phosphoinositides in photoreceptors                                    |
| 9:35 AM  | K.-W. Yau      | Role of cyclic GMP in visual transduction in vertebrate photoreceptors |
| 10:10 AM | J. Lisman      | Light-dependent channels in invertebrates                              |
| 10:45 AM | Coffee         |                                                                        |
| 11:00 AM | B. Suarez-Isla | Sarcoplasmic reticulum calcium channels                                |
| 11:35 AM | R. Coronado    | Calcium-release channel of sarcoplasmic reticulum                      |

Evening Plenary Lecture

I. Levitan -- Discussion Leader

|         |          |                                                                       |
|---------|----------|-----------------------------------------------------------------------|
| 8:00 PM | P. Adams | Chic and vulgarity in biophysics: Ion channels and vertebrate neurons |
|---------|----------|-----------------------------------------------------------------------|

Friday, August 8, 1986

Morning Channel Modulation II

I. Levitan -- Discussion Leader

|          |              |                                                     |
|----------|--------------|-----------------------------------------------------|
| 9:00 AM  | H. Reuter    | Modulation of calcium channel gating                |
| 9:40 AM  | K. Dunlap    | Regulation of neuronal calcium channels             |
| 10:20 AM | Coffee       |                                                     |
| 10:40 AM | P. Kostyuk   | Calcium current modulation                          |
| 11:20 AM | D. Armstrong | Enzymatic mechanism of calcium channel inactivation |

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