tem mainly depends on the quantity of land that would be managed for this purpose, biodiversity conservation also depends on the landscape spatial pattern. Therefore, land use planning is important to optimize climate change mitigation through carbon sinks while maintaining or developing conservation areas, for example, through protected reserves and reforestation of corridors and buffer zones.

Potentially, there are large synergies between LULUCF projects within the Kyoto Protocol and the objectives of the Convention on Biological Diversity, but for these to be realized, we need effective coordination between these international conventions, and among national policies on land use and natural resource management. Measures that ensure a long-term reduction in greenhouse gas emissions should always have priority over carbon sinks, as the latter only have shortterm benefits for the climate. However, LU-LUCF projects will yield other long-term benefits when they have positive impacts on ecosystem functioning, including biodiversity conservation.

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# Nomenclature for Ion Channel Subunits

CYCLIC NUCLEOTIDE—GATED (ACTIVATED) ION channels are most well known for mediating visual and olfactory signal transductions, but they are also expressed in other cell types and tissues. In native tissues, these channels are heteromultimers, with different heteromers showing distinct nucleotide sensitivity, ion conductance (selectivity), and Ca<sup>2+</sup> modulation.

Molecular cloning and genome sequencing efforts have revealed the presence of six

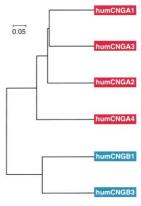
## ADOPTED NOMENCLATURE FOR CYCLIC NUCLEOTIDE-GATED ION CHANNEL SUBUNITS

Adopted nomenclature	Previous designations
CNGA1	CNG1/CNGα1/RCNC1
CNGA2	CNG2/CNGα3/OCNC1
CNGA3	CNG3/CNGα2/CCNC1
CNGA4	CNG5/CNGα4/OCNC2/ CNGB2
CNGB1	CNG4/CNGβ1/RCNC2
CNGB3	CNG6/CNGβ2/CCNC2

genes coding for subunits of cyclic nucleotide—gated channels in human and mouse. The initial isolation and functional characterization of these subunits by different laboratories have led to a confusing and occasionally contradictory nomenclature for describing members of this gene family. To make future

work on these channels more easily understood, a group of us engaged in the study of these channels have agreed to adopt a common nomenclature.

The adopted nomenclature (see the table) for these channel subunits recognizes two phylogenetically distinct subfamilies, CNGA and CNGB, defined by their sequence re-



A phylogenetic tree of the different subunits of cyclic nucleotide—gated ion channels.

lationships illustrated in the figure. The members in each subfamily are now numbered to retain as much similarity as possible to previous identifiers. However, notably, the



#### **NASA Space Life Sciences Research Announcements**

The National Aeronautics and Space Administration (NASA) is pleased to announce solicitations for scientific research proposals. Proposals are requested for **ground-based** research in the following areas:

#### NASA Office of Biological and Physical Research Research Opportunities in Space Life Sciences: Fundamental Space Biology Ground-Based Research: NRA-01-OBPR-06

- Molecular Structures and Physical Interactions
- Developmental Biology
- Cellular and Molecular Biology
- Organismal and Comparative Biology
- Gravitational Ecology
- Evolutionary Biology

#### NASA Office of Biological and Physical Research Multiple Opportunities for Ground-Based Research in Space Life Sciences: NRA-01-OBPR-07

- Biomedical Research & Countermeasures Program & Advanced Human Support Technology Program (Space Human Factors Engineering Element)
- · National Space Biomedical Research Institute
- Countermeasure Evaluation and Validation Project

Announcements available at

http://research.hq.nasa.gov/code\_u/code\_u.cfm or (202) 479-9030 x277

Proposals due January 31, 2002



Biomolecular Technologies: Tools for Discovery in Proteomics and Genomics

The Seventh Annual International Symposium sponsored by the Association of Biomolecular Resource Facilities will be held at the Austin Renaissance Hotel, 9721 Arboretum Blvd., Austin, Texas from Saturday, March 9 through Tuesday, March 12, 2002.

Organizers Greg Grant, Washington University School of Medicine, and Elizabeth Fowler, Millennium Pharmaceuticals, Inc. have assembled an exciting program of plenary, scientific, tutorial and poster sessions. The exposition of scientific equipment, supplies and publications will be from 10:00 AM - 5:00 PM Sunday, March 10 through Tuesday, March 12. The Call for Papers and electronic abstract submission instructions may be found on the Web in August at http://www.faseb.org/meetings. Deadline for submission is November 19, 2001.

#### For further information contact:

ABRF Meeting Office

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#### SCIENCE'S COMPASS

OCNC2/CNGB2/CNG5 subunit is now identified as CNGA4, to convey the phylogenetic relationship between this gene and others of the CNGA subfamily. In the CNGB subfamily, the member expressed in rod photoreceptors, olfactory neurons and other tissues is designated CNGB1, whereas that found in cone photoreceptors and possibly other tissues is CNGB3. In our current nomenclature, the CNGB2 designation is no longer used.

This nomenclature is used in two reports in this issue and will be adopted in future publications by the undersigned investigators.

JONATHAN BRADLEY, 1, 2\* STEPHAN FRINGS, 3 KING-WAI YAU, 1,2 RANDALL REED 1, 2,4

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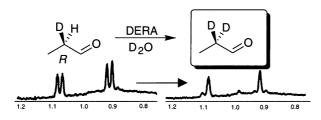
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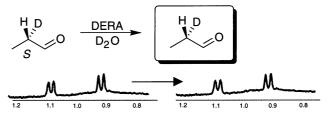
Cosignatories: Martin Biel, Ludwig-Maximilians Universitat München, München, Germany: Elspeth Bruford, HUGO Nomenclature Committee, The Galton Laboratory, University College London; Tsung-Yu Chen, University of California, Davis, CA; Stuart Firestein, Columbia University, New York, NY; Sharona E. Gordon, University of Washington, Seattle, WA; Franz Hofmann, Universitat München, München, Germany; Jeffrey W. Karpen,

University of Colorado Health Sciences Center, Denver, CO; U. Benjamin Kaupp, Forschungszentrum Jülich, Jülich, Germany; Richard H. Kramer, University of California, Berkeley, CA; Emily R. Liman, University of Southern California, Los Angeles, CA; Graeme Lowe, Monell Chemical Senses Center, Philadelphia, PA; Lois J. Maltais, MGI Nomenclature Committee, The Jackson Laboratory, Bar Harbor, ME; Peter Mombaerts, The Rockefeller University, New York, NY; Steven Munger, University of Maryland School of Medicine, Baltimore, MD; John Nagi, University of California, Berkeley, CA; Steven S. Siegelbaum, HHMI and Columbia University, New York, NY; William N. Zagotta, HHMI and University of Washington, Seattle, WA; Frank Zufall, University of Maryland School of Medicine, Baltimore, MD

#### **CORRECTIONS AND CLARIFICATIONS**

REPORTS: "Observation of covalent intermediates in an enzyme mechanism at atomic resolution" by A. Heine et al. (12 Oct., p. 369). In Fig. 4A, two of the four <sup>1</sup>H nuclear magnetic resonance spectra did not print. The correct figure panel appears here.



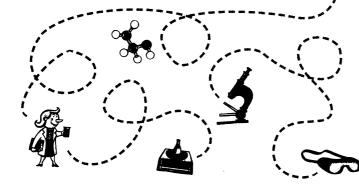


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