Bringing together top young investigators at the frontiers of science
Mary Heng

The newest members of scientific communities, namely graduate students and postdocs, face unique challenges in their careers as scientists. In order to address these challenges, several of the Gordon Research Conferences (GRCs) have extended their meetings to include a two-day pre-meeting called a Gordon Research Seminar (GRS). Following the Gordon tradition of bringing the scientific community together, these seminars invite talented young scientists to share their experiences and research with each other. What sets these international meetings apart is that everything, from planning and coordinating the event to giving talks or mediating symposia, is done by graduate students and postdocs.

Since 1931, the GRCs have been regarded as the premier venue for leading scientists to present and discuss cutting-edge research in biology, chemistry and physics. Recognizing that graduate students and postdoctoral scientists from around the world contribute much to the discoveries that drive science forward, the GRCs’ Board of Trustees approved the first GRS in 1996 to draw on the unique perspectives of emerging young investigators in the GRS experience. The inaugural GRS generated a high level of interest in the scientific community and led to the successful organization of 42 GRSs to date. Since its inception, the GRS Program has flourished and evolved into a cost-conscious and valuable forum for top graduate students, postdoctoral scientists, and other scientists with comparable levels of experience and education. Attendees present their work, discuss their research and build collaborative relationships with their colleagues at a crucial time in their career development.

The GRS experience is unique from other conferences. The environment fosters active participation of all attendees in structured discussion sessions. The meetings are small with a focus on graduate students and postdocs, and are less intimidating than many large society meetings. Participants gain from both scientific content and opportunities for collaborative networking. All GRSs precede a related GRC. This format provides a smaller and relaxed setting where graduate students and postdocs can meet each other before the larger GRC.

In 2009, GRC will organize 17 two-day GRSs on a diverse range of topics, each immediately preceding an associated GRC. A knowledgeable and enthusiastic student or postdoctoral scientist acts as chairperson for each GRS. The chairperson is responsible for accepting applications from fellow graduate students and postdocs, selecting speakers from the most outstanding abstracts, and developing a thought-provoking program. GRS participants who do not give an oral presentation contribute actively through poster presentations. Many GRSs invite select senior faculty mentors to offer support to young scientists in their scientific endeavors and to advise them in their career development. All participants benefit from engaging in top-quality scientific discussions at the forefront of their fields and networking with peers in a highly stimulating and non-intimidating atmosphere.

This year, I am the chairperson for the GRS on CAG triplet repeat disorders. The CAG Triplet Repeat Disorders GRS will be an exciting opportunity to identify innovative areas that are emerging within the field and to realize how individual subjects fit together. Organizing a GRS in conjunction with this GRC is a particularly exciting challenge since this is the first GRS in this field. The goal of the meeting is to provide a greater overall vision of the future direction and progress of the field. Participants will learn about novel breakthroughs and how emerging tools may benefit their research. In order to develop a stimulating program, GRS chairpersons work very closely with the GRC Chair. We raise funds to offer travel support to GRS participants, choose topics and speakers that can appeal to a diverse audience, and plan a program to highlight the newest findings in the field. We also select a keynote speaker for the opening session and invite established scientists to serve as discussion leaders and mentors for the GRS.

Grand Challenges Explorations grants
Innovative scientists to focus on global health

The Bill & Melinda Gates Foundation has dedicated over US$550 million dollars to their belief that one bold idea could change world health forever. The Grand Challenges in Global Health initiatives facilitate the development of innovative ideas to treat or prevent human diseases that affect the world’s poorest people. One of these initiatives is the Grand Challenges Explorations (GCE), which provides seed money to support clever new approaches that might overcome persistent barriers to global health.

GCE grants fund high-risk ideas that are not likely to be considered by more typical funding sources. They encourage scientists to get creative, and even unorthodox, in their approaches to tackle health issues that plague much of the world. The rationale is that the chronic obstacles that inhibit advances in global health are most likely to be overcome through fresh and original approaches.
The two-page application with no requirement for preliminary data is appealing. The short format of GCE grants is meant to promote creativity and to encourage unique ideas from a variety of sources, including the unconventional or non-traditional. Anyone can apply regardless of education or experience, and there are no stipulations on citizenship or residency.

The review process also distinguishes GCE grants from many other grants. Applications are accepted during two cycles each year and reviewed within 4 months of submission. Applicant information is hidden from reviewers in an effort to promote the idea over its source. Reviewers also remain anonymous to applicants, and are proven visionaries with innovative contributions to science or medicine. Each reviewer is given the freedom to choose the grant ideas that they feel hold the most promise. Applicants get ‘yes’ or ‘no’ answers. There is no scoring or detailed feedback, which are common from other granting agencies. Reviewers also remain anonymous to information is hidden from reviewers in an effort to promote the idea over its source. Reviewers also remain anonymous to applicants, and are proven visionaries with innovative contributions to science or medicine. Each reviewer is given the freedom to choose the grant ideas that they feel hold the most promise. Applicants get ‘yes’ or ‘no’ answers. There is no scoring or detailed feedback, which are common from other granting agencies.

**Pointers for GCE grant applications**

- Focus the grant clearly within one of the GCE topic areas. The topics for the next round (round 4) are listed below.
- Define an experiment that will determine whether the proposed idea will eventually become successful.
- Clearly explain how this idea varies from current or conventional approaches.
- Let the idea evolve. Even with the little feedback provided by this review system, make thoughtful changes to a previously rejected grant and resubmit it. Many successful grants are resubmissions.

Awardees receive US$100,000 for one year; after this period, grants showing real promise may be selected to receive a million dollars or more. Grants must focus on one of the GCE’s specific areas of interest in global health. Generally, these involve infectious diseases, including malaria and HIV, or immunology, since these are relevant to the most urgent needs in the developing world.

**Topics for round 4**

- Create low-cost diagnostics for priority global health conditions.
- Create new ways to induce mucosal immunity.
- Create new vaccines for diarrhea, HIV, malaria, pneumonia and tuberculosis.
- Create new tools to accelerate the eradication of malaria.

Grant proposals for round 4 will be accepted online from September through to November 2009 at http://www.grandchallenges.org/Explorations.

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**Celebrating Darwin in Cambridge and worldwide in 2009**

The year 2009 marks two important anniversaries in the history of biology. It is the bicentennial of Charles Darwin’s birth and the 150-year anniversary of the publication of his influential work, *On the Origin of Species*. Scientific communities worldwide are celebrating these anniversaries with special lectures, festivals and other events to honor Darwin’s work.

The city of Cambridge is home to the majority of Darwin’s work, including specimens from his voyage on the HMS Beagle, manuscripts, correspondences, working papers, notebooks and journals. It is also home to The University of Cambridge’s Darwin Festival from 5-10 July.

The core program includes over 40 events, from lectures to string quartets and street dance. Fringe festival events are also scheduled throughout the city. Attendees can enjoy free tours of Darwin’s old rooms in Christ’s College, or see manuscripts from his time on the Beagle at the university library exhibit ‘Voyage Round the World’. An art exhibition at the Fitzwilliam Museum illustrates how Darwin influenced the painting of great artists such as Cezanne and Monet.

Speakers and panelists attending the event include: authors Dame Gillian Beer, Richard Dawkins and Matt Ridley; science and nature broadcaster Sir David Attenborough; and Nobel prize-winning scientists Sir Paul Nurse, Sir John Sulston and Harold Varmus. For more information, visit the festival website at: www.darwin2009.cam.ac.uk.

**Upcoming events worldwide celebrating Darwin’s influence on modern science include:**

- Ongoing events around the UK: http://www.darwin200.org/

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