Centre of Research Excellence – Ingredients for a Successful Proposal

David A Mackey
Centre for Ophthalmology and Visual Science
• $40 Mourayan
  $30 Dunaden
  $20 Niwot
  $10 Glass Harmonium
D Mackey track record with NHMRC 1994-2011

• CIA x1 (NHMRC Project Grant (#350415) 2005-2007: $678,275)
• CIB-F x8 (but funding almost 100% to collaborators)
• Failed x1 Capacity Building
• Successful x1 AI Centre Clinical Research Excellence (Centre for Eye Research Australia)

• More money to my personal group from NIH money than NHMRC!
1996 experiment of 5 grants

<table>
<thead>
<tr>
<th>GRANT TOPIC</th>
<th>PUBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glaucoma Genetics</td>
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<tr>
<td>AMD Genetics</td>
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<tr>
<td>Strabismus Genetics</td>
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<tr>
<td>Leber Hereditary Optic Neuropathy Genetics</td>
<td>17</td>
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<tr>
<td>Prostate Cancer Genetics</td>
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• Success 0/5 but LHON grant nearly got up
• Decade building CV publications

• Reliance on International Collaborations

• Building local team and collaborative network
• UTas CERA/UMelb Flinders QIMR

• Proposed CCRE 3 years ago on Translation of Genetic Eye Research
Poor grant showing in 2010
Core Team

• Jamie Craig @Flinders U Post Doc CERA
• Kathryn Burdon@Flinders U PhD UTas
• Alex Hewitt @UMelb->UWA PhD Flinders

• Strong publishing track record together
• DAM+JEC 81 papers
• DAM+KB 20 papers
• DAM+AWH 65 papers
• (Ten papers with all 4)
Collaborators?

• Fund team members in
  – Tas
  – Melb
  – Flinders
  – UWA

• Considered Qld and NSW (but decided not to)
Consolidate all Previous Work

• Translation

• Translation of genetic eye research (TOGER): integrating gene discovery with patient education, counselling and DNA testing for blinding disease
• 1.1 Consolidate and update existing genetic eye research resources across Australia

• 1.2 Expand family and population-based recruitment to support gene discovery for blinding disease.

• 1.3 Identify novel genes for blinding disease using both family and population based approaches

• LHON RB Glaucoma
• 2.1 Development of accredited genetic tests for blinding inherited disease not currently available in Australia.
• 2.2 Creating education, counselling and feedback protocols for patients, families and health care providers.
• 2.3 To identify barriers to translation and determine the utility of genetic variation associated with common eye diseases in patient screening and risk prediction.
• 2.4 To provide a comprehensive database of genetic mutations to facilitate research and trials of gene based therapies.
• 2.5 Investigating barriers to translation of genetic findings using age-related macular degeneration as a model.
• 2.6 Training orthoptists, optometrists, ophthalmic nurses and other allied health workers in ophthalmic genetic counselling.
• Develop the health and medical research workforce by providing opportunities to advance the training of new researchers, particularly those with a capacity for independent research and future leadership roles
• Facilitate collaboration
Grant

• Heavy Editing (our manuscript editor)  
  (retired government dept head)

• RGMS savvy PA

• Several Practice Interviews  
  – Internally  
  – UWA
Reviewer Comments

• Only 1 reviewer

• 13/14 people asked were deemed conflicted!
Generate new knowledge

• Novel research ideas, substantial resource with capacity to answer important clinical questions
Ensure effective transfer of research outcomes into health policy

• Clear plan and ability to deliver
Develop the health and medical research workforce

• Opportunity for multidisciplinary training, some blurring of boundaries with clinical service training rather than research
Facilitate collaboration

- Cross collaboration impressive nationally and internationally
Record of Research and Translation Achievement

• leading Australian (and international) researchers in their field, well placed to deliver
Since our submission in February, members of this CRE application have published an additional 14 papers (most in leading A and A* journals such as Nature Genetics, Ophthalmology, PLoS One, Journal of Proteome Research etc).

Of note, the findings published in our most recent Nature Genetics publication (2011;43:574-8), which reported two novel loci associated with glaucoma (TOMO1 and CDKN2B-AS1) have already been replicated in studies performed in the United States and Europe (personal communications, manuscripts submitted). Additionally our findings have been linked into the glaucoma risk profile provided by the direct-to-consumer DNA testing company 23andMe. Further to this, work also published in Nature Genetics (2010;42:906-9), for which we provided replication cohorts, is also available for direct-to-consumer testing. Risk profiling of SNPs at the CAV1 and CAV2 loci have been included in the deCODEMe direct-to-consumer DNA testing service.

There is an urgent need to confirm the risk for these SNPs in wider population studies; to interrogate the genes for other causative mutations; and to educate the public as well as health-care providers on how to interpret this information.

Our research crosses all the boundaries of clinical and basic research, from the laboratory to the end user. To translate research into clinical practice we must involve end users, such as patients, families and eye-care providers. For this reason clinical service training is important to deliver appropriately the clinical translation of novel genetic findings. In practical terms the CRE Assessment Criteria 02 and 03 do overlap, and the comment from the reviewer that we have blurred the boundary between "service provision" and "research" reflects our strengths in working at this interface.

Fig. 2: Screen shot depicting the use of disease risk profiling being offered for a novel disease-causing locus identified by our research group.
Practice interviews

• Dao-Yi Yu @ LEI

• Alistar Robertson
• Robyn Owens
• Lin Fritschi
Stylist

• Best suits
• Haircuts
• etc

• Position in Room CIA centre and leading all questions
• Brought own name cards and introduced ourselves

• CIA sat in centre and directed questions

• Prepared opening highlighting unique strengths
  – We are world’s leading researchers in Glaucoma Genetics

• Prepared 2 minutes but asked for 2 sentences!!
• Skills weaknesses (eg ethics and economics) were well addresses by advisory committee

• National? (by Q’ld) addressed by having two national ‘biobanks’ Retinal @SCGH + Glaucoma @ Flinders working with Retina Australia+ Glaucoma Aust
• Collaboration
  – “you couldn’t find un-conflicted reviewers”

• Time commitment

• Training
  – used ourselves as proof
Allocating funding for scientific research in health and medicine is costly and somewhat random

“Expensive Lottery”