

The Power of Bridging Disciplines

Topics

- My History
- Power at the Interface of Disciplines
- Finding the Right Expertise
- Moving along the spectrum from basic to dissemination
- Be fearless and go outside your comfort zone (science and mentor)

Selecting a Mentor: What to look for

- Shared research interests
- Personal commitment to mentoring
- Previous mentoring experience
- Research productivity
- Evidence that success is shared with trainees
- Familiarity with the field and with investigators from other institutions
- National stature
- Available time
- Personal chemistry

*Since no single individual can meet all your needs, consider a **mentoring team***

Personal History

- Primary Care IM
- Clinical Geriatric Medicine
- Genetics of Diabetes
- Physiology that Backtracked Gene Findings
- Moved to Frailty with Bridging/Transition Period
- Epidemiology to Molecular Biology Transitions
- Inflammation to Mitochondria and RAS

Mentoring Team Crucial at Every Step of the Way

Examples of the Strength at Intersections of Expertise

- 1995 NEJM Paper Detailing Discovery of Gene Variant that Predisposed to Type 2 DM and Obesity. (epidemiology, Genetics, Basic biology, Biostatistics, physiology, and diabetes expertise).
- 2001 Frailty Phenotype Paper (epidemiology, Geriatrics, biostatistics, population research)
- 2002 Frailty Biology Characteristics (epidemiology, basic biology, lab medicine, Geriatrics, Cardiology)

Examples of the Strength at Intersections of Expertise

- 2008 Frail Mouse Model (Geriatrics, comparative anatomy, inflammation biology, gene expression)
- 2011 Science Tmed. RAS impacts muscle healing and disuse atrophy in skeletal muscle in aging (Geriatrics, Rehabilitation, genetics, muscle biologists)

Examples of the Strength at Intersections of Expertise

- 2011 PNAS RAS and Mitochondria (comparative anatomy, mitochondrial expertise, cardiology, RAS experts, inflammation)
- Future big papers ????? (Geriatrics plus Epigenetics, epidemiology, mitochondrial biology, inflammation biology, clinical trialists, physiology, SNS, RAS, HPA expertise).

Disciplines

- Clinical internal medicine and Geriatrics set the stage for identifying important problems
- Genetic and Molecular laboratory based approaches set the stage for future discovery in aging
- Epidemiology and Biostatistics: The power of populations and analytical planning to maximize discovery (and number of publications)

Moving Along the Spectrum

- Genetics and Epigenetics
- Basic/molecular/cellular Biology
- Model Organisms
- Human Subject/Physiology/clinical studies
- Clinical Trials
- Epidemiological Studies with lots of population/biological data
- Demographic Studies
- Dissemination

Advice in Moving Across Disciplines

- Think Out of your Comfort Zone
- Be fearless in asking dumb questions to anyone and especially to those in distant discipline
- Learn to enjoy moving backwards and forward along the spectrum of clinical to basic to dissemination

Mentor Roles

- Research competencies
- Career development
- Life skills

Research Competencies

- Provide scientific content expertise
- Offer projects for experiential learning
- Help identify good research questions
- Participate in critical review of the literature
- Help plan research project design and implementation
- Provide access to specific techniques, equipment
- Provide guidance, feedback on data analysis
- Model and reinforce ethical research practices
- Advise on written and oral communication skills
- Refer to other knowledgeable advisors
- Help find resources
- Help develop administrative skills (e.g., budgeting, personnel)
- Suggest journals for submission.
- Aid in response to reviews.
- Help select, prepare, submit grant proposals.

Career Development

- Help develop, refine short- and long-term professional goals
- Help break projects into do-able steps
- Reinforce structure, timelines
- Orient to professional environment, rules, and expectations
- Facilitate visibility and growth of a professional network
- Provide references, letters of support
- Advise about negotiating job offers
- Help deal with setbacks

Life Skills

- Reflect on the balance of work and other roles
- Participate in realistic goal setting
- Advise about planning, negotiating, resolving conflict
- Help reflect on personal areas of strength and limitation
- Provide feedback on managing professional relationships with superiors, peers, subordinates

Interview Topics with Prospective Mentors

- Your background, interests, and goals
- The mentor's background, interests, and goals
- The mentor's research activities- trainee involvement.
- The mentor's perspective on mentoring
- The mentor's expectations for service work on her projects, especially if the mentor will be funding the position
- How the mentor sees the balance between service work on his research and work on the trainee's own scholarship
- The mentor's suggestions for how the relationship would work
- Your learning style versus the mentor's teaching style
- The mentor's general expectations of trainees at your level
- The kinds of opportunities the mentor has provided to prior trainees (national meetings, national workgroups, introductions to faculty and trainees elsewhere, other ways to access the larger research environment)

Working with mentors

Structures

- Self-assessment
- Written career plan with milestones and timelines
- The portfolio
- Meeting agendas
- Advisory committee
- Scheduled written evaluations

Processes

- Goal setting and priorities
- Initiative
- Feedback
- Courtesy

Common Challenges

- Excess demands on the trainee for service time
- Availability of the mentor
- Authorship on manuscripts
- Mentoring styles
- Mentor expresses dissatisfaction
- Mentors disagree with each other
- Unexpected setbacks
- Unexpected or negative findings
- Change in mentors