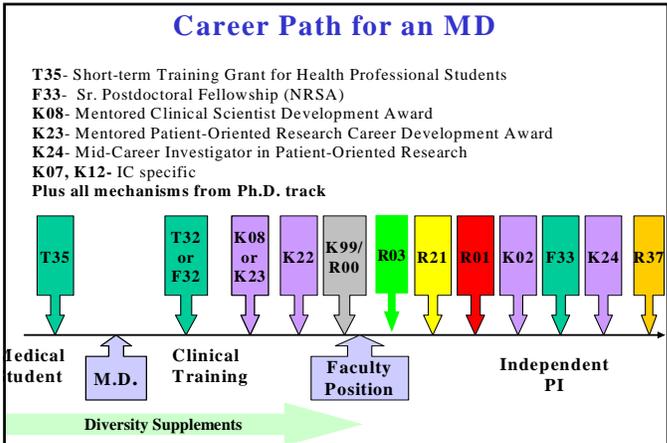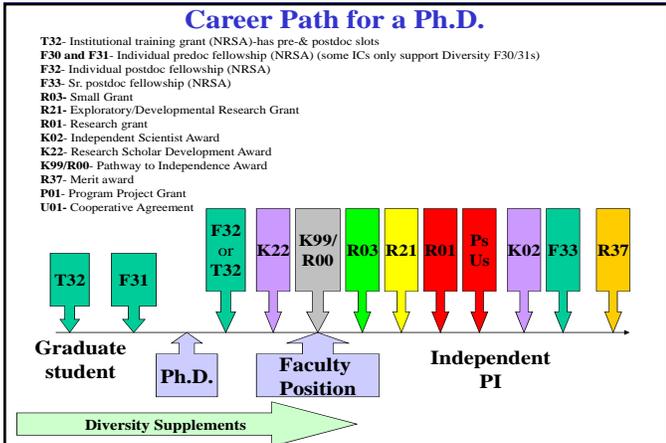## Basic Advice for Mapping Your Career with NIH

- Learn about IC priorities and goals
  - Not all ICs support all grant programs but each IC has a research training and career development program
- Identify the grant programs offered by each IC
- Make early contact with program officers
- Find good mentors and collaborators
- Study successful grant applications
- Only propose your best and most creative ideas
- You won't get a grant if you don't apply

Career Path for a Ph.D.

T32- Institutional training grant (NRSA)-has pre-& postdoc slots
F30 and F31- Individual predoc fellowship (NRSA) (some ICs only support Diversity F30/31s)
F32- Individual postdoc fellowship (NRSA)
F33- Sr. postdoc fellowship (NRSA)
R03- Small Grant
R21- Exploratory/Developmental Research Grant
R01- Research grant
K02- Independent Scientist Award
K22- Research Scholar Development Award
K99/R00- Pathway to Independence Award
R37- Merit award
P01- Program Project Grant
U01- Cooperative Agreement

Career Path for an MD

T35- Short-term Training Grant for Health Professional Students
F33- Sr. Postdoctoral Fellowship (NRSA)
K08- Mentored Clinical Scientist Development Award
K23- Mentored Patient-Oriented Research Career Development Award
K24- Mid-Career Investigator in Patient-Oriented Research
K07, K12- IC specific
Plus all mechanisms from Ph.D. track

Purpose of NIH Career Development Programs:

To provide protected time for individuals to further develop their research expertise.

Mentored K Awards

- K01: Mentored Research Scientist Development Award
- K07: Cancer Prevention, Control, Behavioral Sciences, and Population Sciences Career Development Award
- K08: Mentored Clinical Scientist Development Award
- K22: Research Career Award for Transition to Independence
- K23: Mentored Patient-Oriented Research Development Award
- K99/R00: NIH Pathway to Independence (PI) Award
- K12: Institutional Mentored Research Scientist Development Program

Career Applications, Awards Success Rates
2013

	Apps	Awards	Success
K01	483	160	33% (0-46%)
K08	326	124	36% (0-82%)
K23	555	178	32% (0-100%)
K99/R00	926	203	22% (0-60%)
RPG	49581	8310	16.8%

K Awards – Common Themes

- Most demand 75% FT commitment x 3-5 yrs
- Buys protected time, formal research training and mentored research experience
- Pay $75K, $90K, or 75% of true salary up to cap
- Usually $25K for research support but up to $50K
- For most, prior R03, R21 OK; others are not OK
- Cannot pay the other 25% from federal money
- MOST IMPORTANTLY, each institute may apply each PA differently
- Deadlines in Feb, June, Oct

K01- Mentored Research Scientist Development Award

- Support for intensive, supervised career development in biomedical, behavioral, or clinical sciences leading to research independence.
- 5 year, 75% FT effort, can be up to salary cap
- Define the need for 3-5 years of additional supervised research, can be in *new area for applicant or one that substantially adds to research capability* of applicant
- Ideal candidate varies by institute
- Career hiatus, under-represented in research, disabled, disadvantaged background, interruption of research career

K01-International Research Scientist Development Award

- Awarded thru Fogarty International Center
- Must work with low to middle income countries, as defined by World Bank
- Goal is to provide training in health issues of developing countries, build collaboration
- $75K to PI, $20K for travel, research; 3-5yr
- Must have US and LMIC mentors
- Must spend at least 50% time abroad

NIH Pathway to Independence (PI) Award: K99 / R00

- **Eligibility:**
  - Intramural or extramural postdocs with 1-4 years of experience
  - US Citizens and non-US Citizens
  - Cannot have held a faculty position
  - No more than 4 years of postdoc research training when submitted
  - Cannot have been PI on R01, P01, etc (except R03, R21)
- **Mentored Phase (K99): 2 yrs or less**
  - Costs: Salary $ 50,000 + Fringe + $ 20,000 Research Expenses
  - Total Costs < $ 90,000 /yr
  - 0.75 FTE, Time to complete research, publish results
- **Independent Investigator Phase (R00): 3 yrs or less**
  - Costs: Salary + Fringe + $ 50,000 Research Expenses
  - Total Costs < $ 249,000 /yr

NIH Pathway to Independence (PI) Award K99 / R00

- Phase 1, 1-2 years of mentored support
- Phase 2, 3 years of independent support
- Phase 2 contingent on securing independent research position, evaluation of research plan, positive career development
- Initial application must have proposal for research project as independent investigator in Phase 2

K08-Mentored Clinical Scientist Development Award

- Goal is to support development of outstanding clinician research scientist
- This is the equivalent of K23; go for K23 if patient-oriented
- Limited to clinicians (MD/DO, clinical PhD, others with terminal doctorate)
- 75% FT, $25K for research
- Prospective candidate should propose study, research training for all years consonant with previous training and needs

K23- Mentored Patient-Oriented Research Career

- Clinical degree or equivalent.
- Must have completed clinical training, including specialty/subspecialty training, prior to receipt
- Must be willing to spend minimum of 75% FT professional effort on research career development and clinical research.
- Must be citizen, noncitizen national, or permanent resident (no temp or student visas)
- No prior R01, R29, SBIR, P01 or P50 subproject, K08 or equivalent. R03 or R21 OK.

K23 Support

- Salary
  - $75,000 per year for 5 years
    - Varies by institute
    - Up to 75% of salary cap in "exceptional circumstances"
  - 75% FTE (50% for some specialties)
- Research funding
  - Up to $25,000 per year for research and training expenses (exceptions up to $50,000)
  - Allowable training expense examples
    - Tuition, books, travel

There are 4 K12s at OHSU

- Building Interdisciplinary Research Careers in Women's Health (BIRCWH)
- Emergency Medicine K12
- NIH K12: Oregon Scholars in Clinical Research
- NIH Patient Centered Outcomes Research K12

General Tips on Mentored K Awards

- Understand the intent of the mentored K award.

- To help promising new investigators achieve research independence (i.e., to compete successfully for R01 funding).

- Preparing for the R01 grant application you will submit at the end of the K award should be the organizing principle of the K grant application.

- Make a compelling argument why you need a K award
- Explain exactly how additional training and mentored research experience will enable you to compete successfully for R01 funding.

- Be specific: give concrete examples of areas where you need additional training or experience in order to conduct the proposed research or areas where you are deficient that are directly related to your research career goals.

- Develop a career development training plan that is uniquely suited to you.

- Given your previous training and research experience, and your short- and long-term career goals, propose a mix of didactic training and "hands- on" research experience that make perfect sense for you (and only you).

- Degree-granting programs are appropriate for candidates with little or no previous formal training in research, but even these programs should be "customized" whenever possible.

Four main sections of the grant application:

- The Candidate
- Statements by Mentors, Co-Mentors, and Collaborators
- Environment and Institutional Commitment to Candidate
- Research Plan
- Plus: 3-5 letters of recommendation

The Candidate

- Candidate's background

- Career goals and objectives

-

- Career development activities during award period

- Training in the responsible conduct of research
- Suggested length: 2-3 pages

The Candidate: Review Criteria

- Quality of the candidate's academic and clinical record

- Potential to develop as an outstanding independent researcher

- Likelihood that the career development plan will contribute substantially to the scientific development of the candidate.

Candidate's Background

- Suggested length: Less than 1 page.
- Using your NIH biosketch as your guide, provide a personal narrative of your professional career.
- Explain why you made key career choices (e.g., to pursue specific kinds of training opportunities or research projects).
- OK to use 1st person ("I")

Candidate's Background

- Give examples of the opportunities you've had to engage in research (basic or clinical), as evidence of your long-standing commitment to research.
- Highlight early evidence of productivity (e.g., pursuing a specific question, analyzing data, presenting or publishing your results).
- Describe any formal research training

Candidate's Background

- *Tip*: Begin this section with a summary statement regarding your long-term research career goals.

- *Example*: " My goal is to become an independent clinical investigator and leader in the study of ….. To continue my progress towards this goal, I am proposing an observational prospective study addressing specific hypothesis surrounding the role of gastroesophageal reflux in

Career Goals and Objectives

- Suggested length: at least 2 paragraphs
- The research plan you propose should include some specific "challenges," for which you need additional training and/or experience to accomplish successfully.
- These "deficits" in your training/experience then become the focus of your career development training plan.
- Describe the specific areas where you have deficiencies (e.g., primary data collection, biostatistics, qualitative research methods).

Career Development Activities in Award Period

- Suggested length: 1 - 2 pages.

- List the specific training areas you will pursue to acquire the new set of skills you need.

- Explain why gaining additional training and mentored research experience in these areas will be critical to achieving your short-term and long-term career development goals.

- Describe in detail how you will gain this training, such as through specific courses, individualized tutorials, or practical experience gained from conducting the research.

Review of training plan

- Appropriateness of the content, the phasing, and the proposed duration of the career development plan for achieving scientific independence

- Consistency of the career development plan with the candidate's career goals

- Likelihood that the plan will contribute substantially to the achievement of scientific independence.

Formal Coursework

- If you will need to perform new tasks or require skills that can be taught in a course

- If have limited or no formal postgraduate education in research methods used in the conduct of the award

- List the courses, method of teaching, when you will enroll. Describe the course

Immersion Training Examples

- Laboratory techniques/methods – Working in a collaborator's lab
  - If you do this, be specific about when you will pursue this, how long

- Specific courses, workshops
  - Again, be specific

Training in the Responsible Conduct of Research

- This is important but is more like a checkbox for the reviewer

- See boilerplate

Statements by Mentors, Co-Mentors, and Collaborators

- Assemble a complementary team
- Choose a primary mentor who is a senior investigator with a track-record of NIH funding; your primary mentor should be at OHSU.

- Include co-mentors who will complement the primary mentor's strengths.

- Can you have mentors outside of Portland? Yes, just be cautious.

Mentors, Co-Mentors, and Collaborators

- Each member of your "team" must play a role in your training or research plan. Introduce each with a short paragraph.
- Create a table of what each will provide.

- Establish a mentoring committee of 3-4.
- If you need to add additional members, call them scientific or technical advisors/collaborators, who have a relatively narrow area of responsibility and focus.

- Include an evaluation component that describes how your mentors will assess your progress (e.g., quarterly meetings); include specific milestones during the K award.

- Include timeline, frequency of mentoring

Statements by Mentors, Co-Mentors, and Collaborators (Cont'd)

- Evaluation criteria for primary mentor:
  - Appropriateness of mentor's research qualifications in the area of this application.
  - Quality and extent of mentor's role in providing guidance and advice to candidate.
  - Previous experience in fostering the development of more junior researchers.
  - History of productivity and support.
  - (Adequacy of support for the research project.)

Letters of Collaboration

- The letter from the primary mentor is key. It should cover the following areas:
  - His or her qualifications in the research area proposed by the candidate.
  - Previous experience as a research supervisor.
  - The nature and extent of supervision that will occur during the award period.
  - What resources, if any, they will make available to you in support of your training and/or research.

Primary mentor's letter

- The primary mentor's letter can also "re-frame" any potential weaknesses in the application.
  - Examples:
    - Productivity of candidate (e.g., few publications).
    - Feasibility of conducting research plan with resources of K award.
    - Limited mentoring experience of primary mentor.
    - Limited resources of primary mentor (e.g., no current R01 funding.
    - Co-mentor(s) not at OHSU.
    - Scientific overlap with primary mentor.

Letters of Collaboration

- Letters from co-mentors, scientific advisors, and others can be much shorter.
- Be sure to include description of the role of the co-mentor/scientific advisor.
- Make sure that letters are consistent with text in grant application (re: frequency of meetings, etc.).

Description of Institutional Environment

- Evaluation criteria:
- Adequacy of research facilities and the availability of appropriate educational opportunities.
- Quality and relevance of the environment for scientific and professional development of the candidate.
- Describe the research facilities and educational opportunities of the sponsoring institution (OHSU) that are related to the candidate's career development training and research plans.
- Include relevance of each component to your career development plan.

Institutional Commitment to Candidate's Research Career Development

- Evaluation criteria
- Applicant institution's commitment to the scientific development of the candidate and assurances that the institution intends the candidate to be "an integral part of its research program."
- Applicant institution's commitment to protect at least 75% of the candidate's effort for proposed career development activities.

Institutional Commitment to Candidate's Research Career Development (Cont'd)

- These assurances are stated in a letter from your department chair or division chief
- Note: For fellows, this letter must state that you will be promoted from your current position to a "higher" position (ideally, to a full-time faculty position) during the K award period.

Letters of Recommendation

- 3 - 5 letters are required.
- They should be from senior investigators who have competed successfully for NIH funding and have been involved in the training of junior investigators.
- Can be from any period in your career (e.g., medical school, residency).
- Cannot be from your primary mentor or co-mentors.

Review of Research Plan

- Scientific and technical merit of the research question, design and methodology
- Relevance of the proposed research to the candidate's career objectives
- Appropriateness of the research plan to the stage of research development and as a vehicle for developing the research skills described in the career development plan
- Innovation! Does this create a niche for applicant?