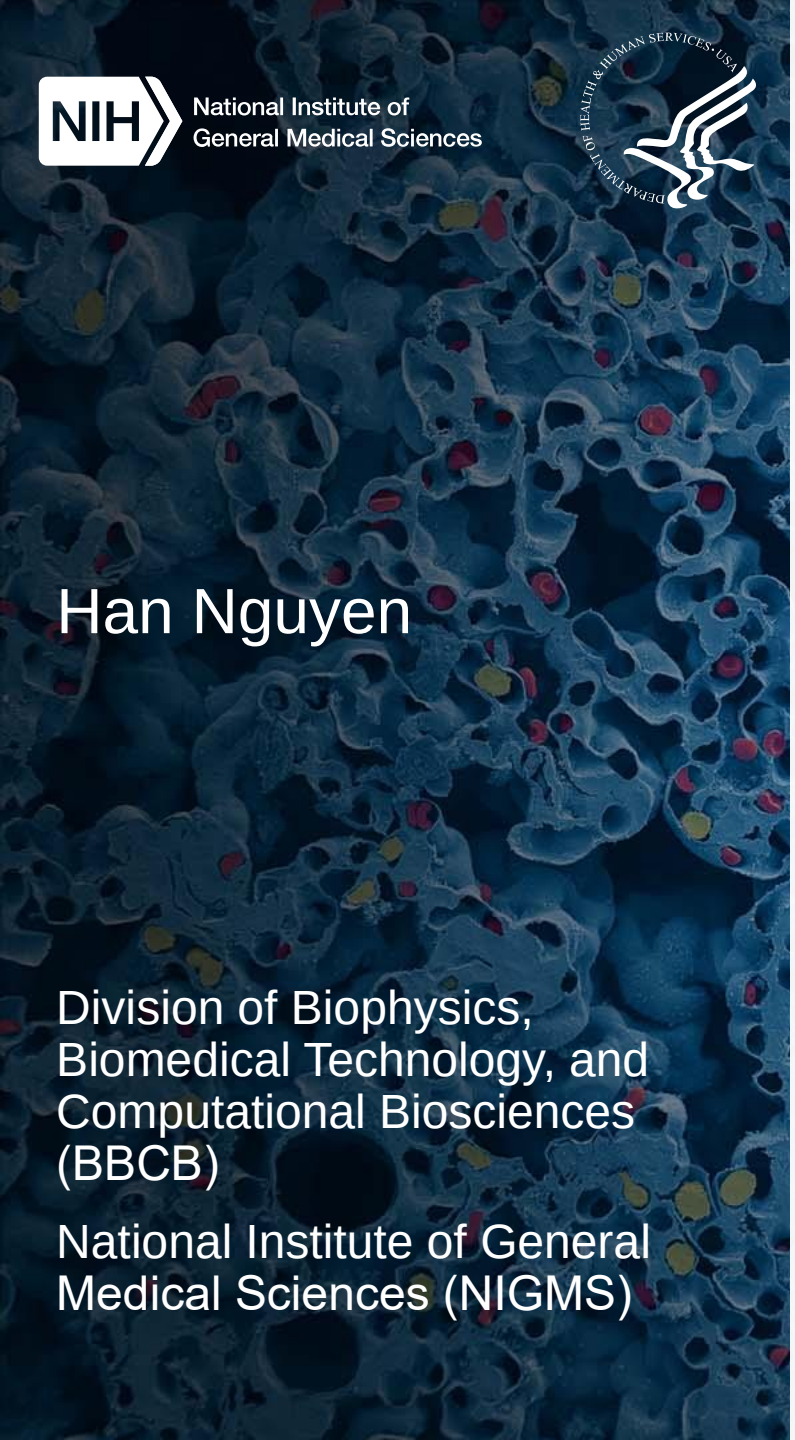


National Institute of General Medical Sciences

Han Nguyen

Division of Biophysics, Biomedical Technology, and Computational Biosciences (BBCB)

National Institute of General Medical Sciences (NIGMS)

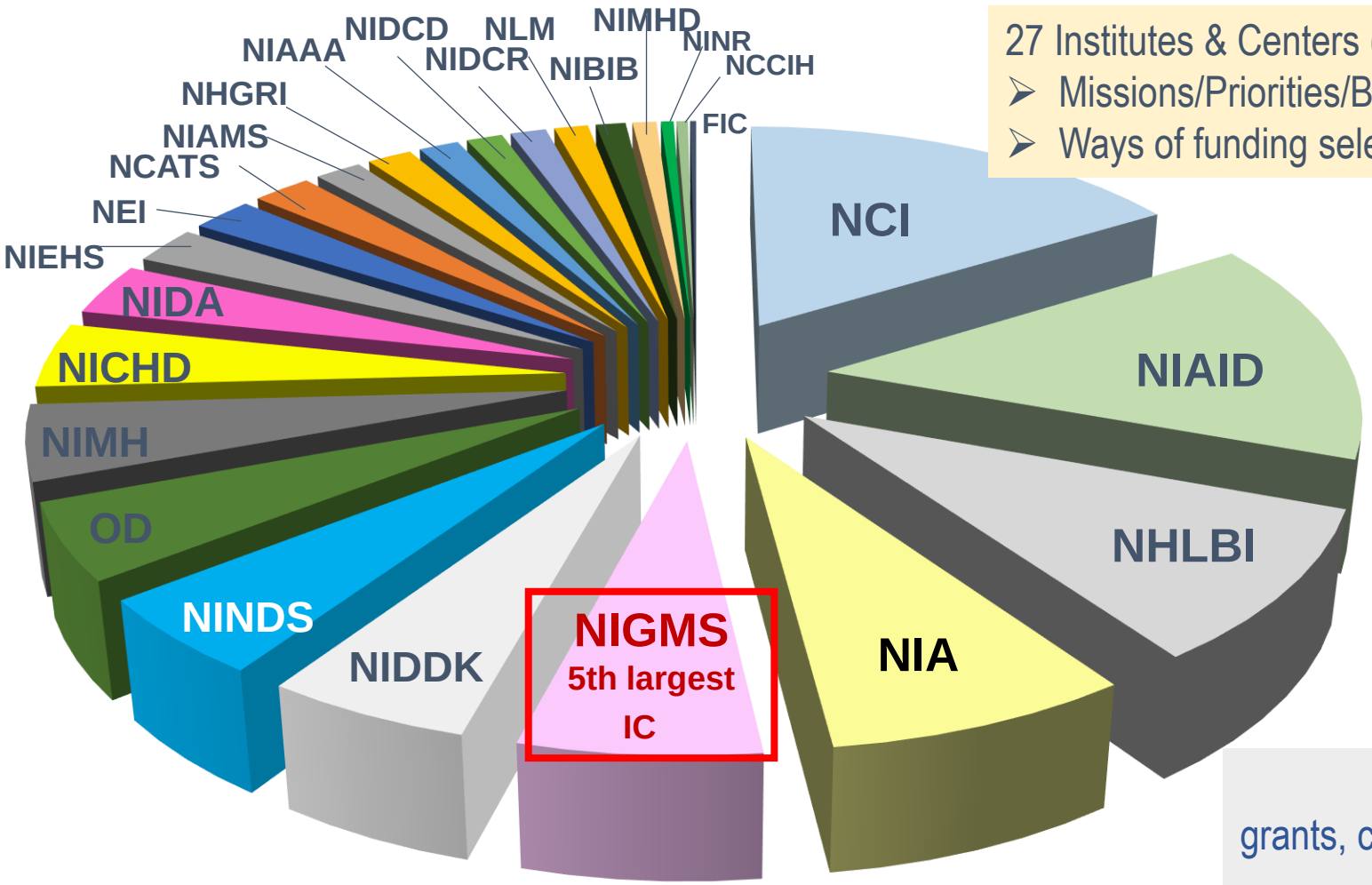
Funding Process at NIH and Opportunities at NIGMS

NIH Mission

Steward of medical and behavioral research for the nation:

- seeking fundamental knowledge about the nature and behavior of living systems
- applying that knowledge to enhance health, lengthen life, and reduce illness and disability

NIH Institutes and Centers (ICs)



27 Institutes & Centers (ICs) with different

- Missions/Priorities/Budgets
- Ways of funding selection

~85% distributed via extramural grants, contracts, cooperative agreements, and ~10% for NIH intramural research

NIGMS Mission

The National Institute of General Medical Sciences supports basic research that increases **understanding of basic biological processes,** laying the **foundation** for future advances in disease diagnosis, treatment, and prevention.

- NIGMS-funded scientists investigate how living systems work at a range of levels, from molecules and cells to tissues and organs, in research organisms, humans, and populations.
- NIGMS **does not support research that focuses on single classes of cells, tissues, organs, or diseases** unless they are used as models for elucidating basic principles.
- NIGMS supports **research and technology development** that is aimed at understanding general principles, mechanisms, and processes.

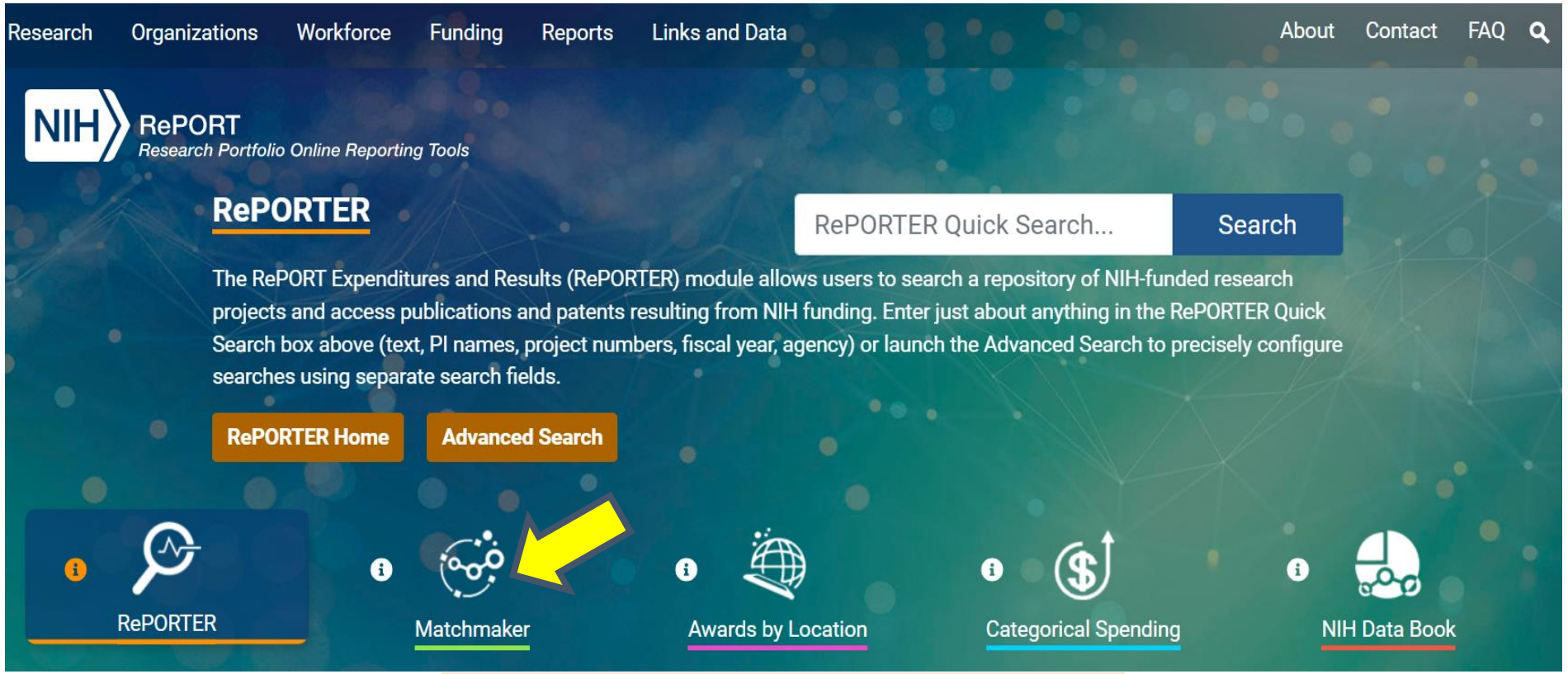
Program Officials (POs) Are Here to Help

What POs Can Do	What POs Can't Do

• Provide feedback on suitability of your proposed work for:
  ○ an institute's mission
  ○ a specific Notice of Funding Opportunity (NOFO)
• Clarify program requirements and administrative policies (often with the Grants Specialist)
• Provide general tips/strategies on writing strong applications
• Suggest resources that might help you in preparing a strong application
	Co-write or rewrite any portion of an application:
	• Propose copy edits to your proposal
	• Provide *specific* edits to specific aims or research plan
	• Recommend *specific* advice on experimental design
	Share information that is not a part of the NOFO or is not in the public domain

For more information: https://nexus.od.nih.gov/all/2020/10/05/program-officials-are-here-to-help/

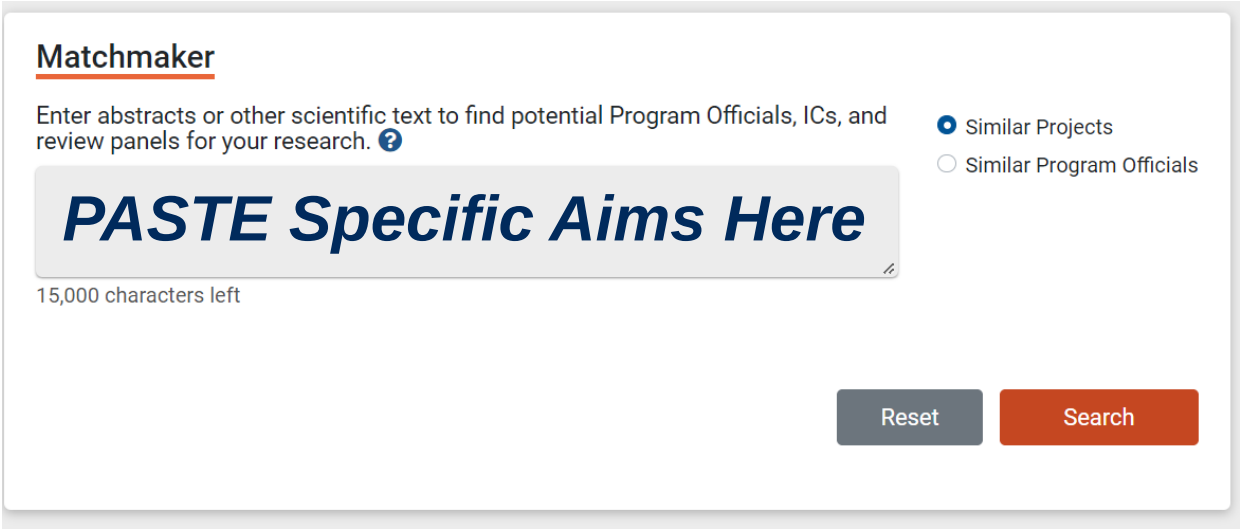
Matchmaker: Find IC(s) and PO(s)

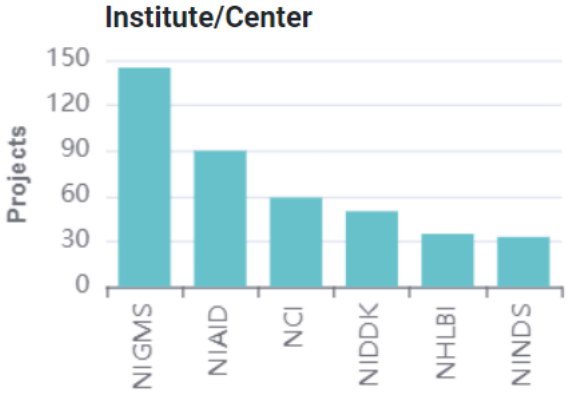


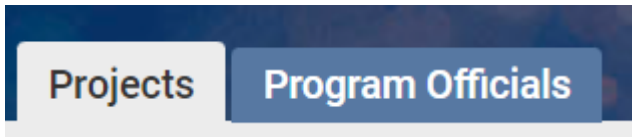
NIH RePORT

https://report.nih.gov/

More on Matchmaker







Possible ICs

- ✓Similar funded projects
- ✓Managing Program Officials (POs) with contact information

Finding Appropriate Grant Mechanism

- What is your level of training and independence?
  - ✓ **F** (fellowship), **T** (training), **K** (career development)
    - ✓ **R** (research) – independent research, not a mentored award

- What kind of institution you are at:
  e.g., **R15**, **R16** for institutions with limited NIH Funding

- How well developed is your research problem? Do you have supporting preliminary data?
  R01 – strong preliminary data; **R21** – high risk/high reward, no preliminary data

- Are you seeking support for a single project or overall research program?
  R01 (specific aims – based) vs. **MIRA** (no specific aims)

NIGMS-relevant NIH Grant Mechanisms

R01 (4-5yrs)
NIGMS **MIRA** (5yrs)
R21 (2yrs)
R15 (3yrs)
R16 (4 or 5 yrs)

Mechanism of Support
(http://grants2.nih.gov/training/extramural.htm)

Pre-doctoral Institutional Training Grant (T32)
Pre-doctoral Individual NRSA (F30)

Predoctoral to Postdoctoral Transition Award (F99/K00)

Postdoctoral Institutional Training Grant (T32)
Postdoctoral Individual NRSA (F32)

NIH Pathway to Independence Award (K99/R00)

F30: Individual Predoctoral National Research Service Award (NRSA) Fellowship

- The candidate has identified a research sponsor and a dissertation project that falls within the NIGMS mission
- The research training is individualized and tailored to the candidate's strengths and opportunity points.
- Provides up to 3 years of support

- https://www.nigms.nih.gov/training/indivpredoc
- Contact: Dr. Donna Krasnewich, dkras@nigms.nih.gov

- F99/K00: Advancing Research Careers (ARC) Predoctoral to Postdoctoral Transition Award to Promote Diversity: PAR-23-222

F32: Ruth L. Kirschstein National Research Service Award (NRSA) Individual Postdoctoral Fellowship

- Designed to provide support for advanced and specialized training in basic research
- Mentored Research Award
- Research project must be integrated with the training plan
- Maximum 3 years of support
- NRSA stipend rates depend on years of post-doc experience

For more information: https://www.nigms.nih.gov/training/indivpostdoc
Contact: Dr. Ashley Barnes, ashley.barnes@nih.gov

Pathways to Independence

MOSAIC (Maximizing Opportunities for Scientific and Academic Independent Careers) **Program**

Contact: Dr. Kenneth D. Gibbs Jr.
kenneth.gibbs@nih.gov

[NIH Pathway to Independence K99/R00]

The award provides up to 5 years of support consisting of two phases:

- K99 provides 1-2 years of mentored support to promising postdoctoral research scientists
- R00: up to 3 years of independent support contingent on the scientist securing an independent research position

Contact: Dr. Paula Flicker flickerp@nigms.nih.gov

Eligibility for the K99/R00

- No more than 4 years of postdoctoral research experience at the time of the initial (new) or the subsequent resubmission application
- Must be in mentored, postdoctoral training positions
- A full year extension is given for childbirth for birth parent. Extensions for non-birth parent is done on a case-by-case basis
- Individuals are not eligible:
  - if they currently or previously held an independent research faculty or tenure-track faculty position, or its equivalent, in academia, industry or elsewhere
  - if they have been an independent PD/PI on NIH research grants or NIH career development awards.

Eligibility for the K99/R00: no citizenship required

- There is no citizenship requirement for K99 candidates. A candidate may be a citizen or a non-citizen national of the United States, have been lawfully admitted for permanent residence, or be a non-U.S. citizen.
- For applications submitted on behalf of non-U.S. citizens with temporary U.S. visas, visa status during each phase of the K99/R00 award must allow the applicant to conduct the proposed research at the applicant's institution:
  - K99 phase: the applicant institution is responsible for determining and documenting, in the K99 application, that the candidate's visa will allow them to remain in the U.S. long enough to complete the K99 phase of the award.
  - R00 phase: the U.S. institution at which the R00 phase of the award will be conducted is responsible for determining and documenting, in the R00 application, that the applicant's visa will allow the applicant to remain in the U.S. for the duration of the R00 award

NIH R15 Programs: AREA & REAP

- Support small-scale research projects at educational institutions offering baccalaureate or advanced degrees in biomedical sciences and receive limited NIH research support.
  - *Academic Research Enhancement Award (AREA) for undergraduate-focused institutions*
  - *Research Enhancement Award Program (REAP) for health professional schools and graduate schools*
  - *3 years, $375K DC over the entire project period*

➢ PAR-24-152 (R15 Clinical Trial Not Allowed): AREA

NIGMS Contacts: Anne Gershenson (anne.gershenson@nih.gov) and Charles Ansong (charles.ansong@nih.gov)

NIH Support for Research Excellence (SuRE) R16 Programs

- Develop and sustain research excellence in U.S. higher education institutions that receive limited NIH research support and serve students from groups underrepresented in biomedical research.
- Provide students with research opportunities and enrich the research environment at the applicant institutions.
  - SuRE (PAR-24-144) for experienced faculty investigators
    - ✓ 4 years, $100k DC/yr
  - SuRE-First (PAR-24-145) for faculty investigators who have not had prior independent external research grants
    - ✓ 4 years, 125k DC/yr

- **NIGMS contact: Pauline Cupit (pauline.cupit@nih.gov)**

Parent R01

- Support investigator-initiated biomedical research.
- Funds discrete projects relevant to IC mission areas.
- Based on Specific Aims

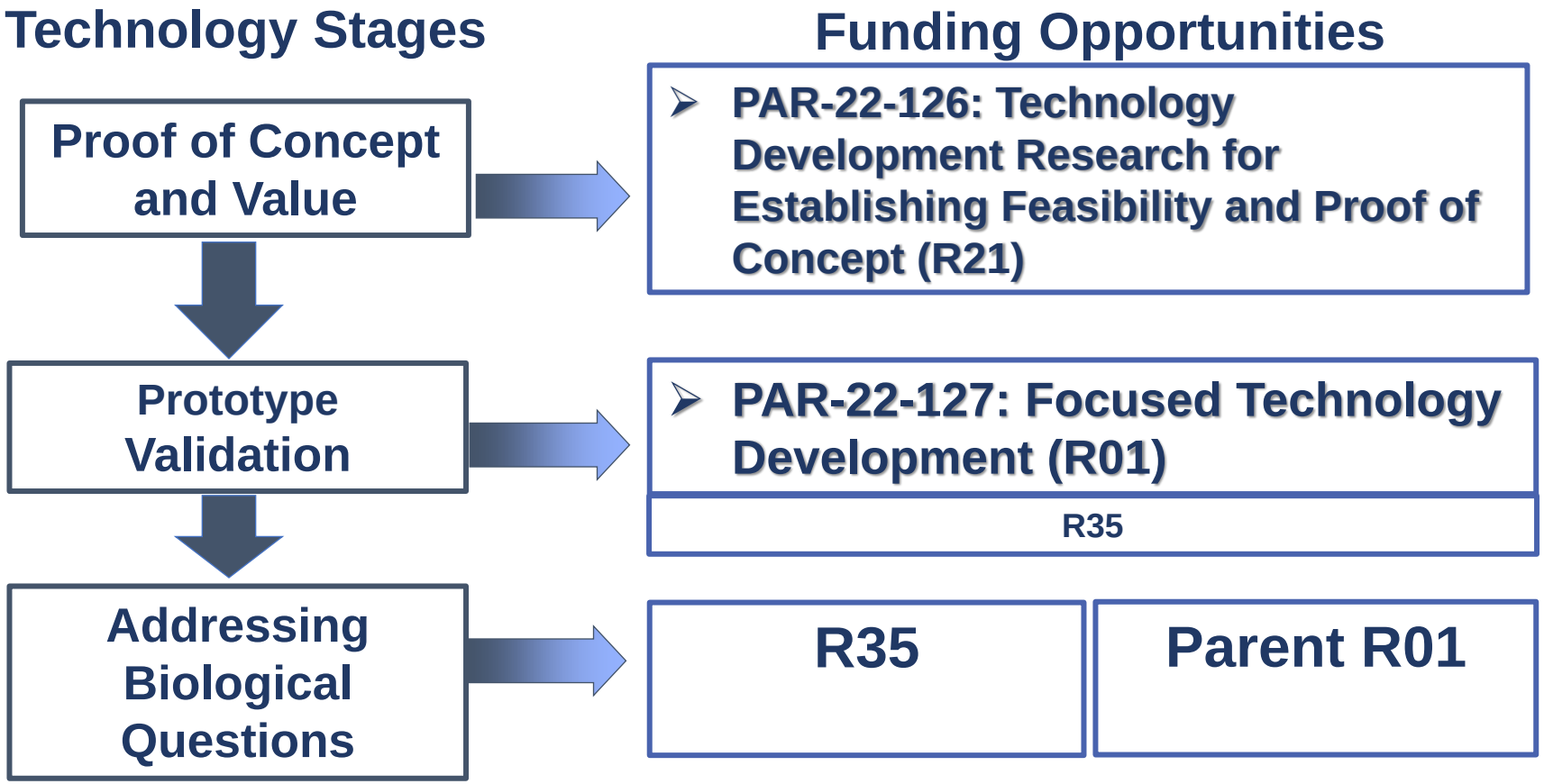
➢ PA-20-185: NIH Research Project Grants (Clinical Trial Not Allowed)

- **Contacts: Program Officers in your scientific area**

NIGMS Maximizing Investigators' Research Award (R35, MIRA)

- Provides individual investigators with
  - 5 years support → stability
  - No required specific aims → flexibility
  - Single-PI only with at least 51% of research effort
- Early Stage Investigators: PAR-23-145 (February and October submissions)
  - No preliminary data and/or independent pubs are required
  - Contact: Sailaja Koduri (sailaja.koduri@nih.gov)
- Established and New Investigators: PAR-22-180 (January and May submissions)
  - Established Investigators must have a qualifying award (a single-PI R01) from NIGMS
  - Contact: Zhongzhen Nie (zhongzhen.nie@nih.gov)

NIGMS Technology Development Programs



NIGMS contact: Alvin Yeh (alvin.yeh@nih.gov)

NIGMS Small Business Grant Programs

- Research and development activities that have strong potential for commercialization
- NIGMS supports innovative SBIR projects that could benefit the research communities related to its mission:
  - STTR-R41,R42-Small Business Technology Transfer
  - SBIR-R43,R44-Small Business Innovation Research
- NIH Small Business Education and Entrepreneurial Development (SEED) website: lots of useful information.
- NIGMS Contact: Eddie Billingslea (eddie.billingslea@nih.gov)

Bioinformatics and Computational Biology Branch (BCB)

NIGMS BCB branch supports bioinformatics and computational approaches that join biology with the computer sciences, engineering, mathematics, biostatistics and physics, as well as general approaches that have the potential for broad applicability and usage

Programmatic research topics:

- Modeling and computational methods development
- Bioinformatics tools and analysis methods, knowledgebase and data repository
- Biostatistics, and quantitative analysis of biological data
- Health informatics & infectious disease modeling

BioMath

- Joint NSF/NIH initiative to supports fundamental research in mathematics and statistics that addresses questions in the biological and biomedical sciences.
- Requirements:
  - Important biomedical/biological problem within NIGMS mission
  - Innovative mathematical/statistical/computational methods
  - Integration of the mathematical approaches and the biomedical/biological problems.
- Two Tracks:
  - Track1 (up to $600K for 3yrs): Exploratory projects (high risk/high reward) and/or new teams
  - Track 2 (up to $1.2M for 3-4yrs): Large scope projects from well-established teams
- Submit to NSF between September 1 - September 18 (Solicitation NSF 22-600)
  - transferred to NIGMS as R01 if selected for funding
- NIGMS Contact: Han Nguyen (han.nguyen@nih.gov)

Infectious Disease Modeling

- Computational modeling to improve the detection, control, and prevention of emerging infectious diseases
- Submission mechanisms:
  - Investigator-initiated research grants: R15, R16, R01, R21, R35 (MIRA), through NIH
  - BioMath: joint DMS/NIGMS initiative to support research at the interface of the biological and mathematics (Solicitation 22-600), through NSF
- Important biomedical/biological problem within NIGMS mission:
  - NIGMS does not focus on single disease unless it is used as a model for elucidating basic principles

Take Home Messages For Early Stage Investigators (ESIs)

- *Biomedical research is more complex than ever…… and so are the systems that support it*
- ***You don't need to navigate this alone.*** Seek guidance from many sources (your mentors, your colleagues, and your NIH POs) early and often
  - ✓ K series if you need mentorship:

    K99/R00
  - ✓ No preliminary data:

    ESI MIRA: Apply early in your career
  - ✓ Use Foundation grants or your start-up funds to acquire preliminary data

    R01: don't try to conquer the world in 5 years
  - ✓ ESIs are allowed to submit both MIRA and R01 with overlaps at the same time!

Any Questions?

han.nguyen@nih.gov