DR. T’S CORNER

Policy Supporting the Next Generation Researchers Initiative

National Institutes of Health (NIH)

Purpose

This notice announces a new policy designed to invest in the next generation of researchers; this policy implements, in part, Section 2021 of the 21st Century Cures Act.

Background - NIH’s mission is to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce illness and disability. NIH recognizes that to meet its mission it must take steps to promote the growth, stability and diversity of the biomedical research workforce.

NIH and its stakeholder community have been concerned for many years about the long-term growth and stability of the biomedical research workforce. The current hypercompetitive environment is challenging for early stage investigators and early established investigators. Many highly meritorious applications go unfunded. While scientific workforce diversity supports the NIH mission, expanding the pool of investigators from nationally underrepresented backgrounds in the biomedical research workforce remains an elusive goal. Even with long-standing congressional support for early research independence, NIH funding, and government-wide efforts to promote STEM workforce diversity, early career scientists find it increasingly difficult to obtain support for a first research award, and retain that support in subsequent years.

Funding Impacts on Next Generation Investigators - Section 404M of the Public Health Service Act, entitled, “Investing in the Next Generation of Researchers” is intended to provide opportunities for earlier research independence while enhancing workforce diversity. To ensure the long-term stability of the biomedical research enterprise, NIH must encourage successful independent careers for early stage investigators, and retain them as they become early established investigators in a way that enhances workforce diversity.

Next Generation Researchers Policy - Consistent with the directives of the 21st Century Cures Act, the Next Generation Researchers policy requires institutes and centers (ICs) to prioritize awards that will fund Early Stage Investigators (ESIs) and Early Established Investigators (EEIs).

Early Stage Investigator (ESI) - An ESI is a Program Director / Principal Investigator (PD/PI) who has completed their terminal research degree or end of post-graduate clinical training, whichever date is later, within the past 10 years and who has not previously competed successfully as PD/PI for a substantial NIH independent research award. A list of NIH grants that a PD/PI can hold and still be considered an ESI can be found at [https://grants.nih.gov/policy/early-investigators/list-smaller-grants.htm](https://grants.nih.gov/policy/early-investigators/list-smaller-grants.htm). ESIs are encouraged to enter the date of their terminal research degree or the end date of their post-graduate clinical training in their eRA Commons profile to ensure their correct identification.

Under the Next Generation Researchers policy, meritorious R01-equivalent applications with ESI PD/Pis will be prioritized for funding. ICs will put this prioritization into effect starting in fiscal year (FY) 2017. The goal for FY 2017 will be to fund approximately 200 more ESI awards than in FY 2016.
By providing funding priority for ESIs, NIH intends to encourage funding applications that involve researchers earlier in their career. An NIH R01-equivalent research grant application with more than one PD/PI (MPI) will be prioritized for funding only if all MPIs have ESI status.

Early Established Investigator (EEI) - An EEI is a PD/PI who is within 10 years of receiving their first substantial, independent competing NIH R01-equivalent research award as an ESI. A meritorious application with a designated PD/PI EEI may be prioritized for funding if:

1. The EEI lost or is at risk for losing all NIH research support if not funded by competing awards this year.
   OR
2. The EEI is supported by only one active award.

NIH will identify EEIs in their eRA Commons profile by January 2018. An NIH grant application with more than one PD/PI (MPI) will be prioritized for funding only if all MPIs have EEI status and meet prioritization criteria.

By providing funding priority for applications with EEIs, the NIH intends to stabilize the career trajectory of research investigators, consistent with the legal directives described herein. The goal for FY 2017 is to achieve an overall opportunity for funding 200 more EEIs across the NIH than in FY 2016.

Requests for Extension of Next Generation Researchers Status - NIH anticipates that some PD/PIs may have experienced a lapse in their research or research training or have experienced periods of less than full-time effort during their ESI or EEI status. In order to accommodate such lapses, the NIH will consider requests to extend ESI or EEI period for reasons that can include medical concerns, disability, family care responsibilities, extended periods of clinical training, natural disasters, and active duty military service, determined on a case by case basis at the sole discretion of NIH. ESIs and EEIs may request an extension of their eligibility under existing ESI procedures.

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**RESEARCH CORNER**

**Fantauzzo Lab Research Summary**

Our lab is focused on investigating the mechanism and function of signaling through a particular family of receptor tyrosine kinases, the platelet-derived growth factor (PDGF) receptor family, in development of the cranial neural crest cell (NCC)-derived craniofacial skeleton. Craniofacial development is a complex morphogenetic process, disruptions in which result in highly prevalent human birth defects. Signaling through the PDGFRs plays a critical role in this process in both humans and mice. *Pdgfra* mutant mouse models display a range of craniofacial phenotypes such as midline clefting, subepidermal blebbing and hemorrhaging. Functional analysis of PDGFRα signaling has revealed roles in promoting migration of cranial NCCs, proliferation of the NCC-derived craniofacial mesenchyme and osteoblast differentiation. We have recently uncovered a role for the other receptor tyrosine kinase in this family, PDGFRβ, in murine craniofacial development, demonstrating that ablation of Pdgfrb in the NCC lineage results in increased nasal septum width, delayed palatal shelf development and subepidermal blebbing. Further, we showed that PDGFRα and PDGFRβ genetically and physically interact in the craniofacial mesenchyme to form functional heterodimers with unique signaling properties, thus uncovering a novel mode of signaling for the PDGF family during vertebrate development. Our goal is to examine the *in vivo* dynamics of PDGFR dimer-specific formation and characterize novel intracellular pathways and cellular processes engaged downstream of PDGFR induction. We utilize an array of complementary approaches such as bimolecular fluorescence complementation, phosphoproteomics, conditional mutagenesis in the mouse embryo, next-generation sequencing and *in vitro* primary cell activity assays to explore novel aspects of craniofacial biology and ultimately provide therapeutic directions aimed at the treatment of human birth defects.