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NIGMS Technology Development (R21 and R01) Program Funding Opportunity Announcements (FOAs)

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NIGMS Funding Opportunities for the Biomedical Technology Pipeline

From Untested Concepts to Broad Dissemination

- **Proof of Concept**
  - Exploratory Research for Technology Development (R21)

- **Feasibility**
  - Focused Technology Research and Development (R01)

- **Broad Application**
  - Biomedical Technology Development and Dissemination (RM1)

Commercialization: patents, industry partnerships, User Research Resources, SBIR/STTR programs etc.
Technology Development Enables Biological Discoveries

• Technology enables new approaches to addressing biological and biomedical research questions

• Challenging biological and biomedical questions can identify technological needs and emerging technological opportunities
NIGMS Funding Opportunities for Early-Stage Technology Development

TechDev Stage

- **Proof of Concept & Value**
  - Exploratory Research/Technology Feasibility

- **Prototype Validation**
  - Iterative Technology R&D/Validation Studies

Funding Opportunity

- **Technology Development R21**
  - Innovative Concepts

- **Technology Development R01**
  - Verification of Utility

TOOLS TO ENABLE

EXPERIMENTAL INQUIRY

BIOLOGICAL RESEARCH QUESTIONS
## Funding Opportunity Announcements (FOAs)

<table>
<thead>
<tr>
<th>PAR-22-126 (R21)</th>
<th>PAR 22-127 (R01)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New Applications only</strong>&lt;br&gt;NO resubmission</td>
<td><strong>New and Renewal Applications</strong>&lt;br&gt;NO resubmission&lt;br&gt;ONE renewal only</td>
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**Standard Receipt Dates**
Both FOAs support applications that are focused on **INNOVATION** rather than feasibility, with the **POTENTIAL** to **ADVANCE** biomedical research.

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<tr>
<th>PAR-22-126 (R21)</th>
<th>PAR 22-127 (R01)</th>
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<tbody>
<tr>
<td>• Evaluate untested concepts</td>
<td>Develop technologies adequatedly to address biological questions</td>
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<tr>
<td>• Establish feasibility</td>
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<tr>
<td>• Must not have already been developed in the literature or with preliminary data</td>
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</table>
TechDev R21/R01 Application Characteristics

• Focus on technology development
• Address a technology need or emerging technological opportunity
• DO NOT apply technology to new biological questions
• Adhere to the mission of a participating NIH Institute (NIGMS, NIA, NCI)

Other NIH Institutes and Centers also support technology development through the NIH Parent R21 or R01 and EBRG or BRG
TechDev R21 – Establish Feasibility and Proof of Concept

• Two-year grants that support technology development at a conceptual stage
• Technology developed is non-obvious and will be a significant advance over state of the art
• Technology has not been tested for feasibility – No Preliminary Data Allowed
• Only New applications are accepted – No resubmissions
## TechDev R21 Review

<table>
<thead>
<tr>
<th>Broad utility for biomedical research</th>
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<tbody>
<tr>
<td>Non-obvious, significant advance over state-of-the-art</td>
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<tr>
<td>High level of risk appropriate for exploratory research</td>
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<tr>
<td>Conceptual – not yet supported by data - Published or unpublished data that forecast project objectives or support proof of concept are not allowed</td>
</tr>
<tr>
<td>Validated with well-characterized biological models or systems – no biological, hypothesis-driven research</td>
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<tr>
<td>Well-defined, measurable milestones and objectives that establish feasibility</td>
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</table>
TechDev R01 – Focused Technology R&D

• Projects optimize and validate new technologies

• Technology developed is a significant advance over state of the art and will have broad utility for biomedical research

• Tech Dev R01 is for technologies with established feasibility that require further work to produce a useful prototype.

• Only New applications are accepted – No resubmissions

• TechDev R01 may only be renewed once under this FOA, and may also be renewed under the Parent R01
## TechDev R01 Review

<table>
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<th>Broad utility for biomedical research</th>
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<tbody>
<tr>
<td>Significant advance over state-of-the-art</td>
</tr>
<tr>
<td>Potential impact on biomedical research commensurate with risk</td>
</tr>
<tr>
<td>Feasibility supported by preliminary data</td>
</tr>
<tr>
<td>Validated with well-characterized biological models or systems – biological, hypothesis-driven research aims are not allowed</td>
</tr>
<tr>
<td>Well-defined, measurable milestones and objectives that establish readiness for biomedical research applications</td>
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</tbody>
</table>
NIGMS Technology Development Programs

NIGMS TechDev R21/R01 Program

- Develop tools to enable experimental inquiry without addressing biological questions

NIH Parent R01, STTR/SBIR and more

- Address biological questions
- Disseminate technology
NIGMS Support of TechDev and Dissemination

NIGMS Resources R24

NIGMS MIRA

NIGMS BTDD

NIH Parent R01

NIH STTR/SBIR

NIGMS TechDev R21

NIGMS TechDev R01

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