Cancer Moonshot Data Visualization Methods and Tools Development (R33)

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New Enabling Technologies - Cancer Moonshot Implementation Team
Overall Goal

- Stimulate the development of new cancer data visualization tools that have the potential to make data from Cancer Moonshot areas more explorable and interpretable by the broader cancer research community.
Data Visualization to enhance Cancer Moonshot areas

- Data Visualization is cross-cutting and timely
- Data are being generated across Moonshot areas
- NCI needs to support tools to get ahead of these data
A Need for Data Visualization Tools Across Moonshot Areas

- The Moonshot BRP identified data visualization as a cross-cutting need.
- Common challenges persist for the broader cancer research community for gaining insights from emerging data and information:
  - Deconvolution of high-dimensional data.
  - Visualizing complex data as lower-dimensional embeddings.
  - Integrated visualization of data from single cell genomics and radiological images.
  - Viewing subsets of data of interest to a particular research community while maintaining the larger context of the full data resource.
Data emerging from and aligned with Cancer Moonshot
Data Visualization is distinct from Imaging

Cancer Data Visualization
- The visual display of data and relationships, often via transformations of the data
- Tools can be tailored to enable biological insights or be more exploratory, depending upon the need

Cancer Imaging
- Viewing, processing, & management of imaging data
- Instrumentation and microscopy development
- Molecular & fluorescent probe development
R33 Funding Opportunity (RFA)

Development of new visualization tools and approaches addressing Cancer Moonshot-aligned use cases and priorities

- **Open to applications from all investigators**
- Investigator-identified use cases, user communities, and insights to be gained
- Each proposed tool will enable visualization of Cancer Moonshot data addressing the specified use case and user community
- Expectation of tool validation studies
- Award lengths of 4 years

**Anticipated Effort**

- Assessment of user community
- New visualization development
- Interface & interaction design
- Iterative refinement & user testing
- New documentation
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Applicants instructed to:

▪ Identify a data visualization use case aligned to Cancer Moonshot and specify a targeted user community that is currently underserved by existing data visualization tools.

▪ Propose the development of a data visualization software tool that addresses the use case, the insights to be gained for the user community.

▪ Describe plans for validation of the proposed tool(s), and plans for community engagement.

▪ Project lengths up to 4 years at $250K/yr direct. Anticipate a total of four awards will be made. The total cost for all years is $5M.
Thank You

Portfolio Analysis

- R01 Awards
  - No NCI R01 awards for exploratory data visualization
  - When present, exists as a secondary effort
- SBIR Awards
  - A current NCI contract topic for visualizing multiscale data
  - Available only to small business research community
- ITCR Awards
  - Supports informatics tool development, few data visualization awards
  - Awards made have been for advanced development of existing tools
## Human Tumor Atlas Network (HTAN) Dashboard

[Visit the HTAN Dashboard](https://humantumoratlas.org/dashboard)

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