W.M Keck Foundation Funding Guidelines

Funding is awarded to universities and institutions nationwide for projects that are consistent with the Research Program's funding priorities:

We fund projects that:

- Demonstrate the W.M. Keck Foundation support is essential to the project's success
- Demonstrate feedback from public agencies stating that the project was too risky and overly ambitious
- Fall outside the mission of public funding agencies
- Focus on important and emerging areas of research
- Have potential to develop breakthrough technologies, instrumentation, or methodologies
- Demonstrate a high level of risk due to unconventional approaches or challenge the prevailing paradigm
- Have potential for transformative impact, such as the founding of a new field of research, enabling of new observations, or altering perception of a previously intractable problem

We do not fund:

- General operating expenses, endowments, or deficit reduction
- Grants to individuals
- Public policy research
- General and federated campaigns, including fundraising events, dinners, or mass mailings
- Book publications and film productions
- Conference, workshop, or seminar sponsorship
- Medical devices and translational research
- Clinical trials or research for the sole purpose of drug development
- Therapeutic clinical development
- Prototypes or devices, unless the instrument development advances breakthroughs in basic science
- Bridge funding or follow-on research

Examples of recent winning projects:

Medical Research #1

A research team composed of biologists, engineers and physicists at Weill Cornell Medicine will develop the next generation high-speed atomic force microscope (NG-HS-AFM) to take single molecule movies of rare and transient conformational states of proteins at unprecedented spatiotemporal resolution. The research team will first apply the NG-HS-AFM to pain-sensing ion channels involved in inflammation and chronic pain, but the capabilities of NG-HS-AFM are widely applicable and will open new avenues for interrogating a variety of biomedically important proteins.

Medical Research #2

Investigators at the Salk Institute for Biological Studies have invented a groundbreaking new technology platform called “Dyenamics.” The Dyenamics platform will enable the critical proteins and nucleic acids that assemble in the nucleus to specify individual and global gene activation and silencing to be fluorescently labeled, visualized, memorialized, and identified in living cells for the first time. The team will apply Dyenamics to reveal fundamental new insights into the dynamic 4D combinatorial code and interactions that determine gene expression and is deregulated in cancer and viral infection.

Medical Research #3

Causes of single-cell heterogeneity and conditions that motivate cancer cells to collaborate remain critical, unresolved problems. A team of six investigators at the University of Michigan will investigate these problems using large, single-cell data sets in combination with inverse reinforcement learning, an artificial intelligence method typically applied to discover motivations for human behaviors, and computational models inferred from the physics and chemistry of cell signaling and migration. This project aims to develop a new path to understand and treat cancer.

Science and Engineering #1

Researchers from the Colorado School of Mines and the University of Colorado Boulder plan to develop a new quantum simulator that can generate highly tunable long-range interactions among a large number of qubits—the first of its kind. This quantum simulator can be used to explore uncharted areas of quantum many-body physics where interactions are non-local, speed up the generation of many-body entangled states, and provide new insights into the design of novel materials.

Science and Engineering #2

A team of researchers from the University of Texas at Austin, the University of Idaho, and the University of Florida aims to quantify the rates of processes contributing to sediment build-up at the termini of outlet glaciers (producing moraines) to improve predictions of ice sheet response to climate. Obtaining this detailed, mechanistic understanding of moraine-building will allow far more accurate sea-level-projecting models of ice sheets to be built, thus making society more resilient to climate change.

Science and Engineering #3

Our understanding of cell biology has been greatly accelerated by our ability to peer directly into the cell with increasing spatial and temporal resolution. While incredible progress has been made in this realm, the ability to perform live cell imaging with molecular level resolution remains elusive. The PIs will pursue a new paradigm where spatial resolution is directly transformed into time to entirely avoid the diffraction limit. The method, which they call Gradient Reconstruction Imaging (GRI), achieves diffraction-less imaging with resolution approaching that of electron microscopy but on living systems. The work will deeply impact our understanding of complex biological processes through unprecedented access to the choreography of proteins in living systems.