

# Partnerships at the Department of Energy

**BEGINNINGS**: Manhattan Project was a partnership that

- Created a National Capability – National Laboratories
- Initiated a New Industry – Atomic energy and High-Performance Computing
- Addressed a National Emergency – A World at War



ELECTRONIC FIELD TRIP



A framework for partnerships

## Building National Capabilities

Computational  
Science

Scientific User  
Facilities/Experiments

Exascale Ecosystem

## Advancing New Industries

High Performance  
Computing

Quantum

Computing/Networking

## Address a National Emergency

Deep Water Horizon  
Fukushima

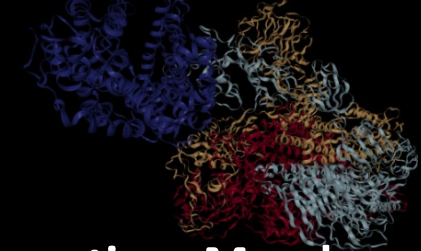
COVID-19 HPC

Consortium

National Virtual Biology  
Lab

# COVID-19 High Performance Computing Consortium: Addressing a National Crisis

The COVID-19 High Performance Computing Consortium



Bringing together the Federal government, industry, and academic leaders to provide access to the world's most powerful high-performance computing resources in support of COVID-19 research.

**42 Consortium Members**

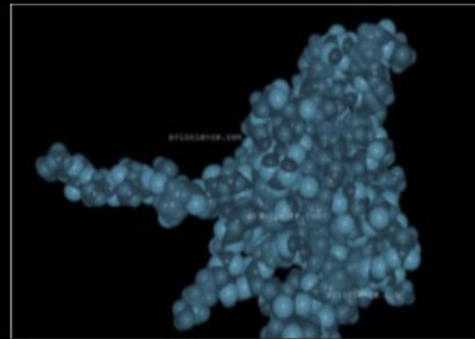
**114 Projects**

**141K Nodes**

**6.4M CPU cores**

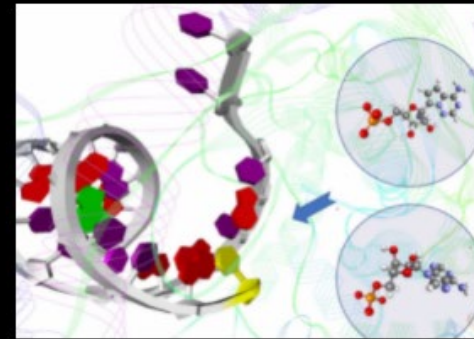
**49K GPUs**

**603 Petaflops**



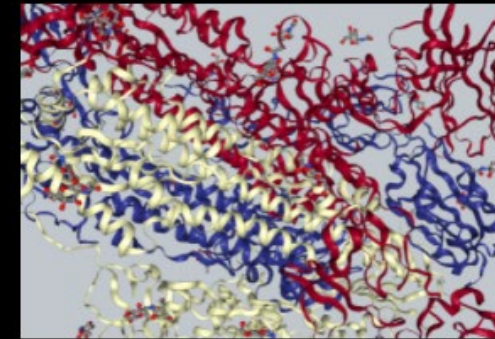
SARSCOV2/COVID19 protein interruption search with existing active compounds using quasi-quantum...

Therapeutics



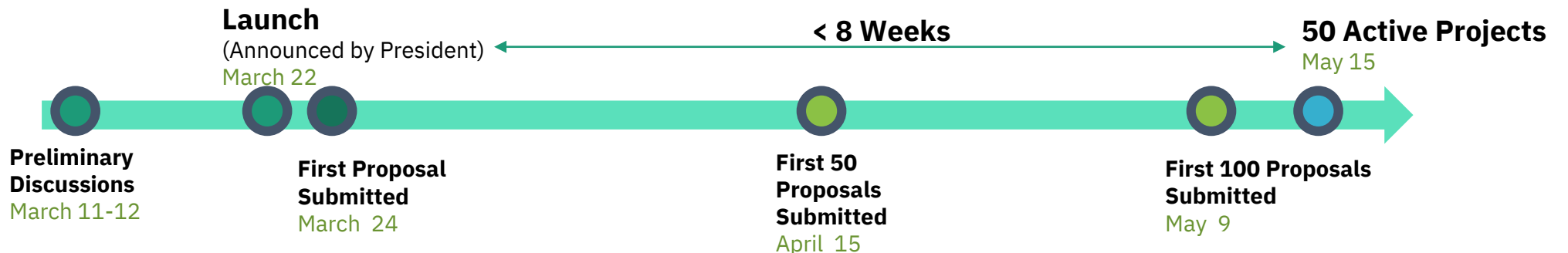
The Competition of Antiviral Drugs with ATP to Inhibit the SARS-CoV-2 RNA-dependent RNA Polymerase: A Key t...

Therapeutics



High-Performance Causal Inference for COVID-19 Mitigation and Response

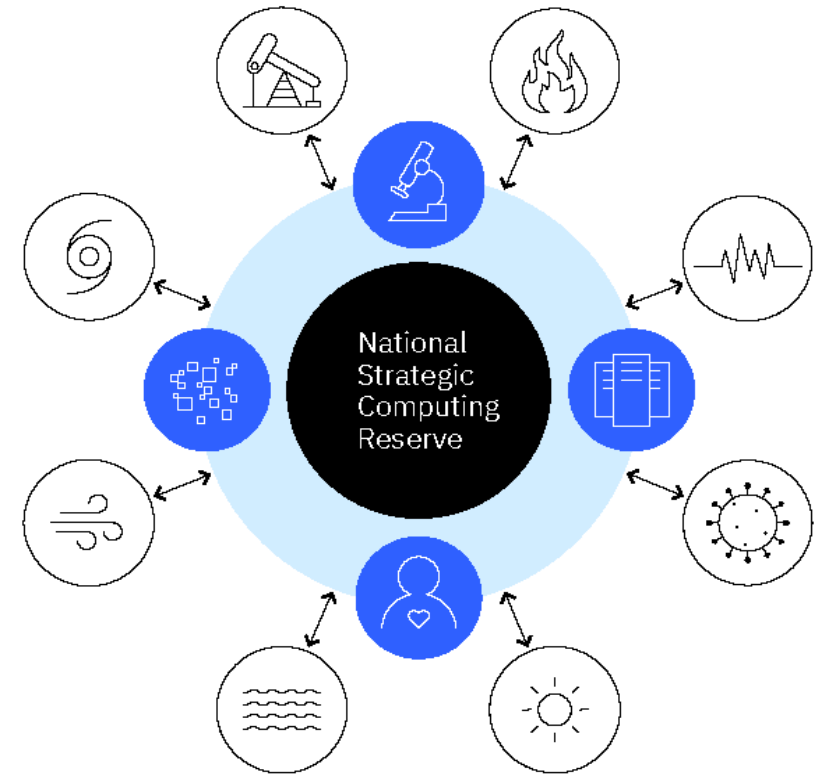
Patients



# Lessons Learned

- The ability to leverage existing processes is critical
- Engagement with a broad stakeholder community (NIH, FEMA, CDC, etc.) is needed for maximum impact
- Don't reinvent process: A standing capability to support proposal submission and review process and coordinating with service providers is critical
- Pre-positioned data, data sharing agreements, and codes streamline projects and increase impact
- The work supported was limited to open, publishable activities

Pre-planned IP policies and processes are necessary for substantial private sector engagement



National Strategic Computing Reserve