

Understanding the Rules of Life: Predicting Phenotype

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Looking Ahead: Ten Big Ideas



Navigating the New Arctic



Harnessing Data for 21st Century Science and Engineering



Work at the Human-Technology Frontier: Shaping the Future

RESEARCH IDEAS



Understanding the Rules of Life: Predicting Phenotype



The Quantum Leap: Leading the Next Quantum Revolution



Windows on the Universe: The Era of Multi-messenger Astrophysics

PROCESS IDEAS



Growing Convergent Research at NSF



NSF-INCLUDES: Enhancing Science and Engineering through Diversity

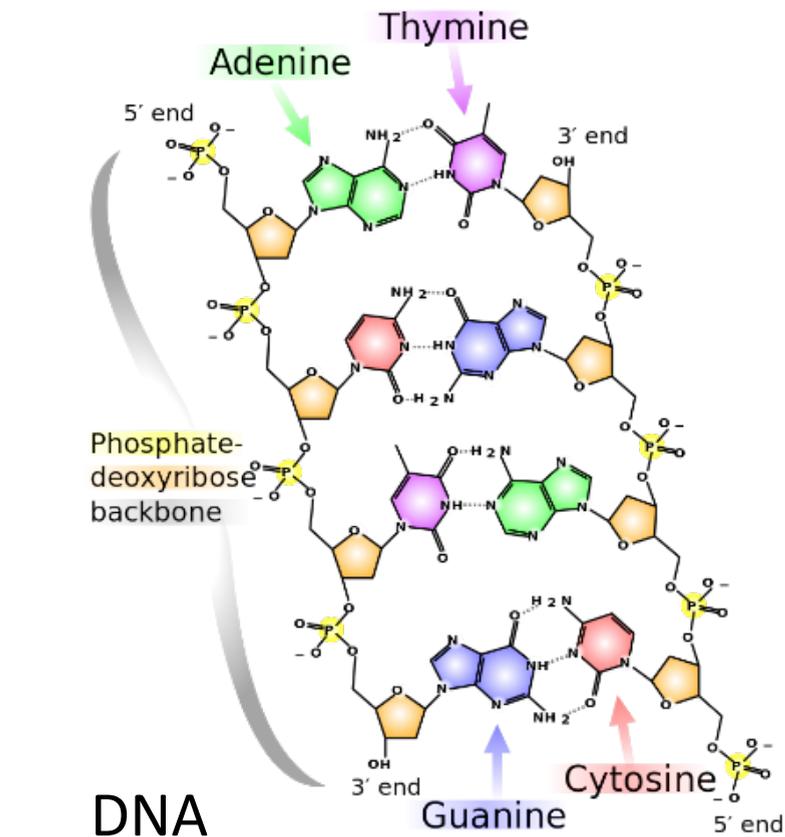


Mid-scale Research Infrastructure

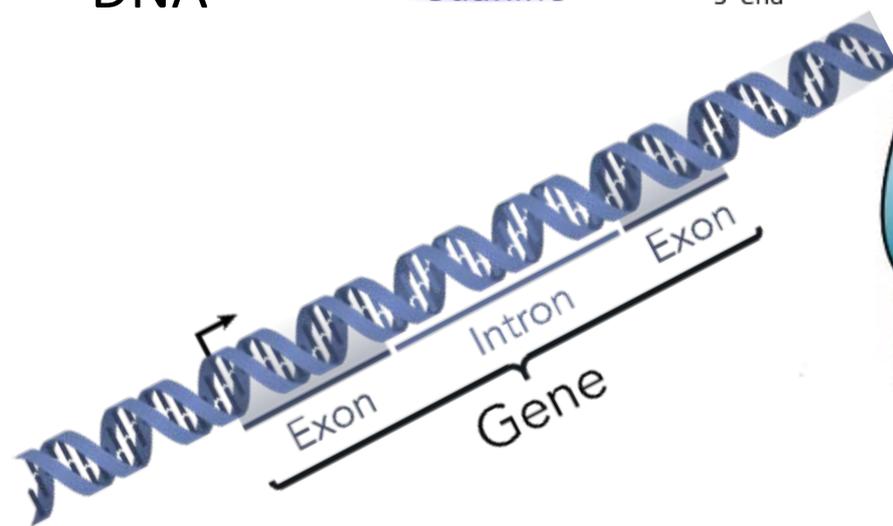


NSF 2050: Seeding Innovation

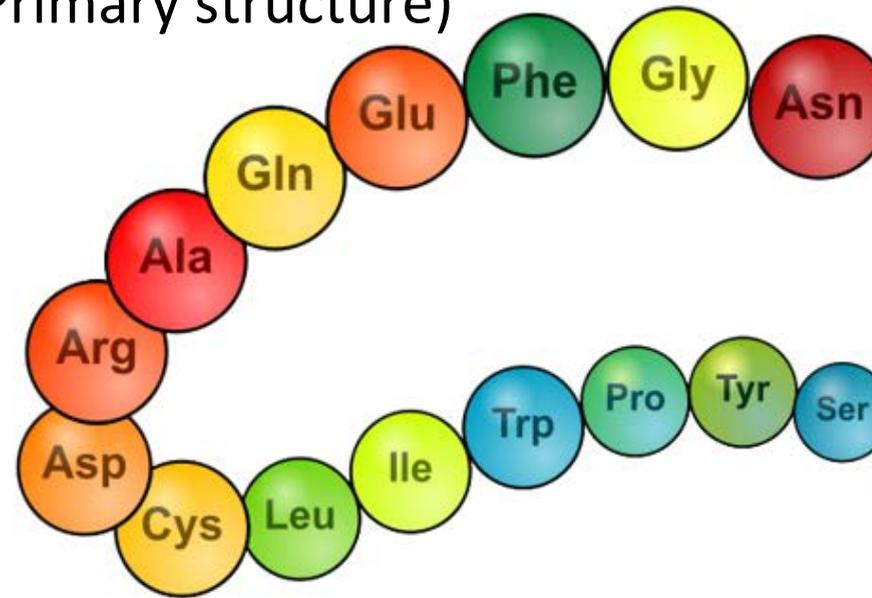




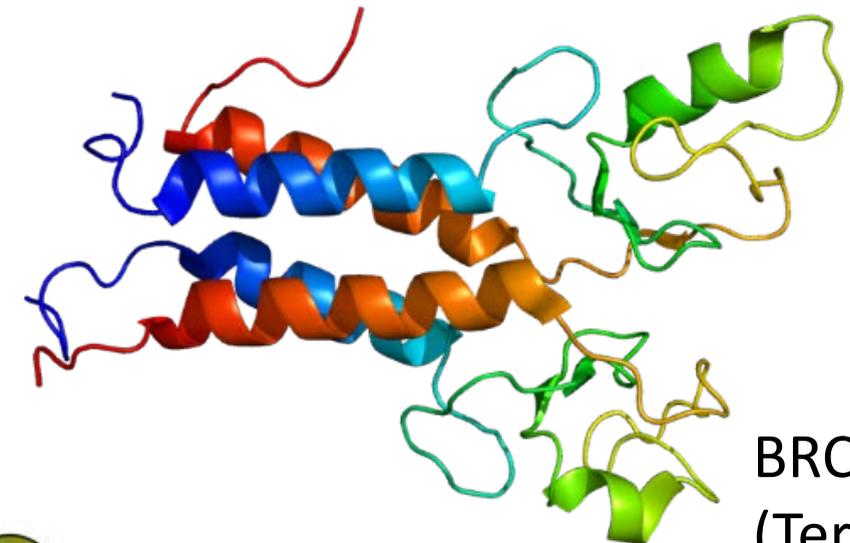
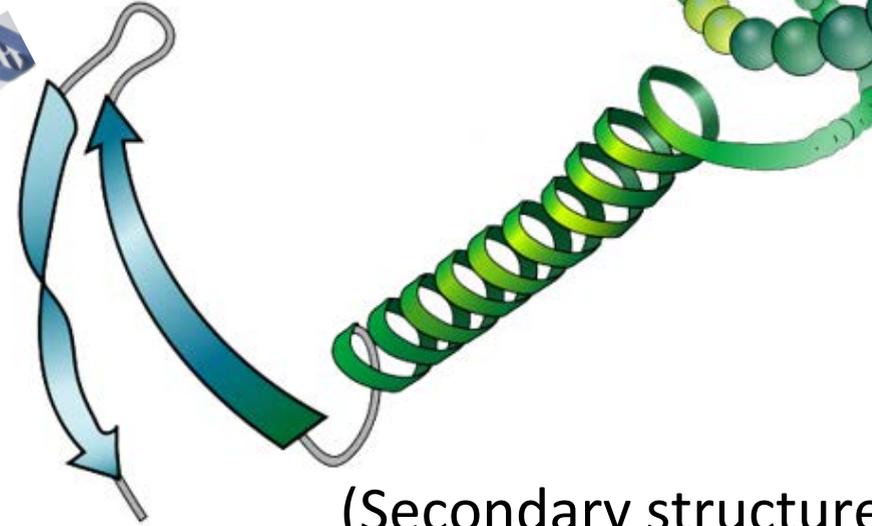
DNA



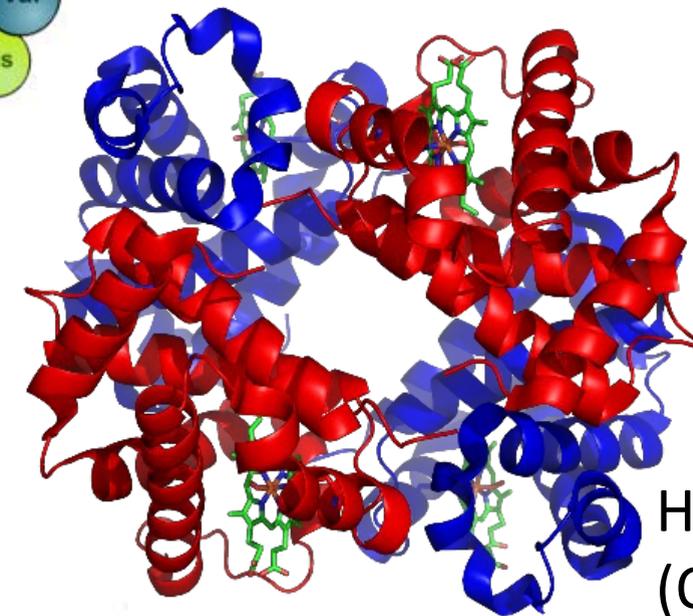
Protein
(Primary structure)



(Secondary structure)

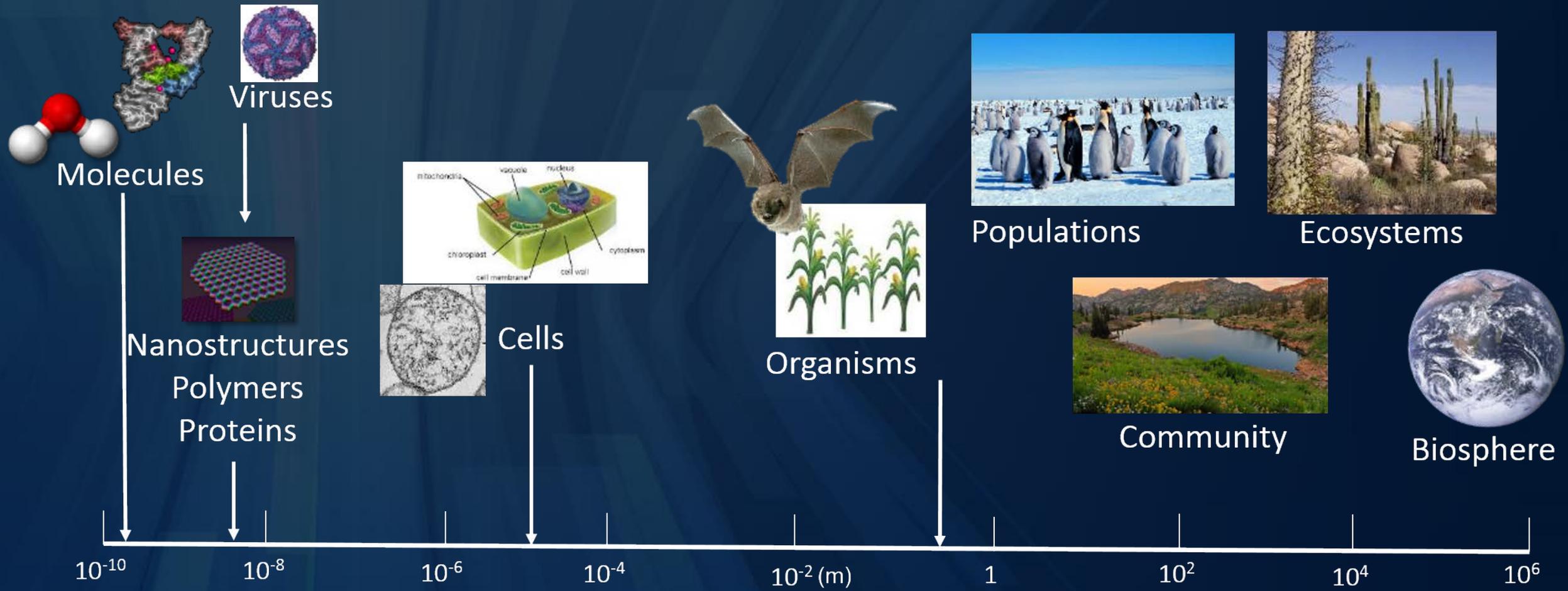


BRCA1
(Tertiary)



Hemoglobin
(Quaternary)





Rules of Life





IDS Georadar Pegasus:Stream
Ground-penetrating radar (GPR) and terrestrial laser scanning allow for simultaneous imaging of both above ground foliar and below ground biomass root structure.

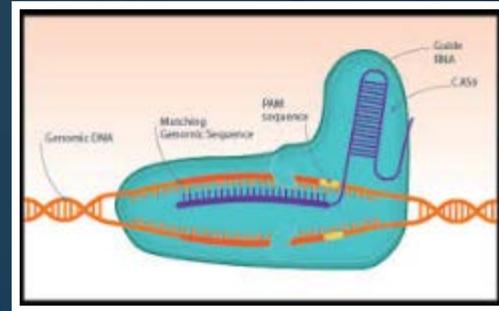


The GPR will help researchers look at the rhizomes and root systems of perennial sorghums without having to dig them up.

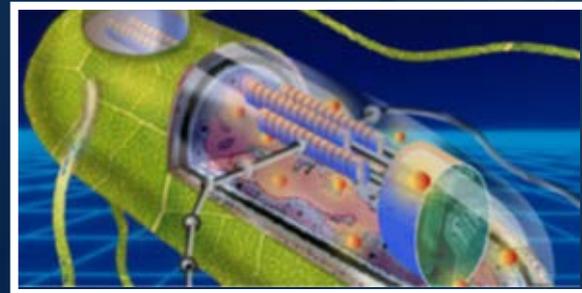
(Texas A&M AgriLife Research photo)



BIOLOGY IS THE ENGINE OF INNOVATION



Basic Discoveries
Tool Development



Data

Synthetic
Biology

BioData



Organisms
&
Ecosystems

