

NSF MCB: Driving bioscience research forwards

Dr Theresa Good is the Deputy Division Director of the National Science Foundation's (NSF) Division of Molecular and Cellular Biosciences (MCB). Within this, she is also the Program Director of the Systems and Synthetic Biology 'cluster' of the division's research focuses, supporting studies that will develop a comprehensive understanding of biological systems. Within these roles, Dr Good is responsible for the MCB's NSF-allocated budget, the organisation of affiliated public events, and the continual investment in ground-breaking research that focuses on molecular and cellular biosciences.

Back when it was first established in 1950, the National Science Foundation (NSF) was allocated a budget of just over \$150,000 to support its founding mantra: to promote the progress of science, advance the national health, prosperity, and welfare; and secure the national defence.

Today, times have drastically changed, and the NSF now have an annual budget of \$7.5 billion, and are responsible for funding approximately 24% of all federally supported basic research across America's colleges and universities. This includes investment and support in several areas of science, including: biological sciences, engineering, environmental research, education and geosciences – among many more.

THE MCB

Within the biological science branch of the NSF's funding lies the Division of Molecular and Cellular Biosciences (MCB) – an organisation responsible for supporting fundamental research at the "intersection of disciplines to uncover the emergent properties of complex living systems across the molecular, subcellular and cellular scale". This support is given to research proposals and concepts ranging from physics to

mathematics to chemistry, broken down into what the MCB call 'clusters'. These include research areas such as:

- Molecular Biophysics
- Cellular Dynamics and Function
- Genetic Mechanisms
- Systems and Synthetic Biology

GOOD LEADERSHIP

Within this Systems and Synthetic Biology cluster, Dr Theresa Good is the Program Director, responsible for funding creative research proposals that focus on the "structure and function that govern the behaviour of microbial communities, plant systems, and other model organisms".

Not only that, but Dr Good is also the Deputy Division Director of the MCB, in charge of all the research 'clusters' mentioned previously. It is, however, within the Systems and Synthetic Biology cluster that she focuses most of her research endeavour, with currently supported research including a CAREER study at the University of Wisconsin-Madison – working towards synthetic biology in human stem cells – and the ERASynBio project at the University of California-Berkeley – looking at synthetic biochemical pathways to produce novel biofuels.



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NSF & NIST

Another programme that Dr Good is especially involved with is the 'NSF-NIST Interaction in Basic and Applied Scientific Research in BIO, ENG & MPS' programme. This aims to form a collaborative research effort between the NSF and the National Institute of Standards and Technology (NIST) – a non-regulatory federal agency within the US Department of Commerce – to utilise the organisations' shared interests in applied science and engineering. Working together, this programme will provide funding opportunities to prospective scientists working within these research fields.

ONGOING SUCCESS

Responsible for roughly 6% of the NSF's total \$7.5 billion annual budget, as of this year, the MCB are actively funding approximately 800 research proposals across the USA, pledging over \$486 million in investment support. It is through their support, and the tireless work of Dr Theresa Good at the helm, that scientific and technological advances are being seen at a more and more efficient rate. The NSF was set up to 'promote the progress of science', and in the 67 years that have followed since its inception, it is safe to say that it has continually done so. With ground-breaking research consistently supported and with a regular budget backed by the government, long may that scientific progress continue.

• For more information about the NSF or the MCB, please visit their affiliated websites at www.nsf.gov and www.nsf.gov/div/index.jsp?div=MCB, respectively.



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