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## ABSTRACT

### **Research quality and productivity improvement in life sciences**

At a time when more than half of published research turns out to be either uninformative or non-reproducible, there is a great societal need to gain insight into the origins of reproducible scientific discoveries that transform public health. Considering the major societal interest in greater scientific progress, it is important to look into the driving forces of change. Simply spending more on research will not be enough to reduce waste and increase beneficial impact in the global competition. Our data science and meta studies include, among others, identifying best research practices of Nobel Laureates and other high impact scientists; developing methods to prevent research errors and ineffectiveness in the laboratory, and designing evidence-based organizational strategies to increase practically impactful innovation. My Wiley book titled *Innovative Research in Life Sciences: Pathways to Scientific Impact, Public Health Improvement, and Economic Progress* explores the creative processes from vague research ideas to valuable innovation. By drawing on lessons from hundreds of award-winning scientists, serial innovators, and leading research universities, 12 transformative competencies of successful researchers are highlighted. Considering the pacesetter role of policies, five strategic recommendations are put forward: (i) funding projects with higher expectations of reproducibility; (ii) public-private partnerships for contemporaneous quality support in laboratories; (iii) making research institutions accountable for quality control; (iv) supporting new quality filtering standards for scientific journals and repositories, and (v) establishing a new network of centers for scientific health communications.

### **Short CV Prof. MD, PhD E.Andrew Balas**

is a Hungarian academic who is a fellow of the American College of Medical Informatics and elected member of the European Academy of Sciences and Arts. He serves as Professor at Augusta University (formerly Medical College of Georgia). Balas is Vice President of the Friends of the National Library of Medicine.

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