Precompetitive Oncology Biomedical Research

Danger  Opportunity

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The Fast-Growing Ecology of Collaborative Research
Greater Potential for Breakthroughs

- **Wider exploration**, broader translational research
- **Richer mix** of scientific disciplines, especially those tangential (or alien) to pharmacology
- Greater involvement of scientists with **personality traits more likely to foster breakthroughs**
- **Broad cross-pollination**, conducive to the **recombination of knowledge**
- Lots of variances, freedom to engage in **paradoxical thinking**, and operate at the interface between disciplines
- **Passion**, driven by **vision**, untamed by routine
- Reward system driven by **meritocracy**, fun, ‘coolness’, and the **exhilaration** of pushing the boundaries of knowledge just because it’s possible
Greater Potential for Dysfunctionalities

Faster science magnifies dysfunctionalities, which could end up slowing biomedical innovation

- **Regulatory gaps**: regulations must co-evolve with science
  - What is the process to provide timely regulatory guidance for tomorrow’s breakthroughs? (or yesterday’s breakthroughs, e.g., stem cells, nanotechnology, customized therapies with a trial size of 1)

- **Knowledge gaps**: 40% of genes remain unknown, undermining the Critical Path Initiative’s goal of achieving greater predictability in drug R&D

- **Scientific breakthroughs** can cause ‘creative destruction’, which threatens vested interests, but is also a potent driver of wealth creation
  - There needs to be better processes to educate and manage concerns so that we can remain a science-driven society
Conclusions

• Precompetitive collaborative research is here to stay
• It is proceeding much faster than expected
• It is much bigger than big pharma and biotech
• It has the potential to renew the aging pharmaceutical research model and create enormous value
• It could all come to naught (or little) without the resolve to address the system’s dysfunctionalities