

Summer Research Colloquium  
Ethical & Responsible Conduct of  
Research

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Grantsmanship, Ideas & the  
Ethics of Grant Writing

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In science the credit goes to the man who convinces the world, not to the man to whom the idea first occurs.

- *William Osler*

# Research Is...

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- Complex
- Intellectually Demanding
- Rewarding and Frustrating
- Unpredictable
- Big Business
- Prone to Corruption?

# Research Is Complex

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- Education & training
- Facilities
- Financial support
- Logistics
- Publication
- Other career responsibilities

# Research Is Intellectually Demanding

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- ❑ Valid assumptions
- ❑ Research plan
- ❑ New information
- ❑ Analysis & conclusions
- ❑ Expression of conclusions
- ❑ Defense of conclusions
- ❑ Separate emotional from analytical

# Research Is Rewarding... and Frustrating

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- ❑ Discoveries... are incremental and rare
- ❑ Career path... requires constant cultivation
- ❑ Intellectually satisfying... but tedious, laborious and slow
- ❑ New basic insights... come with demands

# Research Is Unpredictable

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- Accept the unexpected
- Popular opinion

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Science cannot stop while ethics catches up—  
and nobody should expect scientists to  
do all the thinking for the country.

- *Elvin Stackman*



# Research Is Unpredictable

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- Accept the unexpected
- Popular opinion
- Art vs science
- Unpredictable, or invalid conclusions?

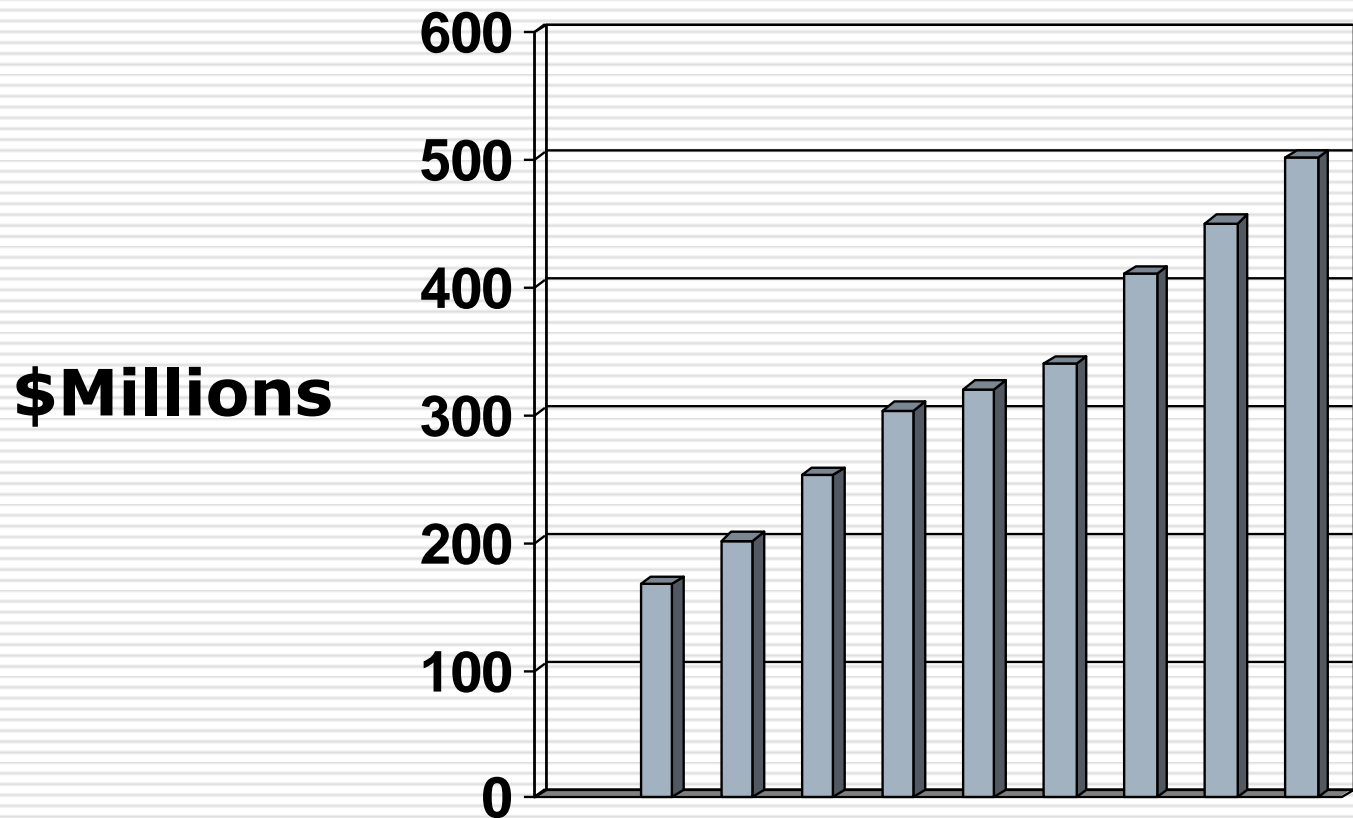
# Research Is Big Business

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- ❑ US R&D budget... \$350 B
- ❑ NIH budget... \$30 B
- ❑ UMB awards... \$500 M
- ❑ New drug R&D costs... \$600 M - \$1 B or \$200 M
- ❑ Ave R01 (annual)... \$500 K
- ❑ Annual Revenue to universities on inventions... \$2 B

# Growth In Research Support Last 10 Years -- UMB

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# Research Is Prone to Corruption?

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- ❑ Scientific misconduct
- ❑ Invalid conclusions

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A few observations and much reasoning  
lead to error;  
many observations and a little reasoning  
to truth.

- *Alexis Carrel*

# Research Is Prone to Corruption?

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- ❑ Scientific misconduct
- ❑ Invalid conclusions
- ❑ Financial conflicts of interest
- ❑ Science is politically, economically, popularly driven

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Though many have tried, no one has ever yet explained away the decisive fact that science, which can do so much, cannot decide what it ought to do.

- *Joseph Wood Krutch*

# Responsible Conduct of Research

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- Data acquisition, management, sharing, and ownership
- Mentor/trainee relationships
- Publication practices and responsible authorship
- Peer review
- Collaborative science
- Human subjects
- Research involving animals
- Research misconduct (F, F and P)
- Conflict of interest and commitment





**Jesse  
Gelsinger**

Joe Giffels  
Academic Affairs

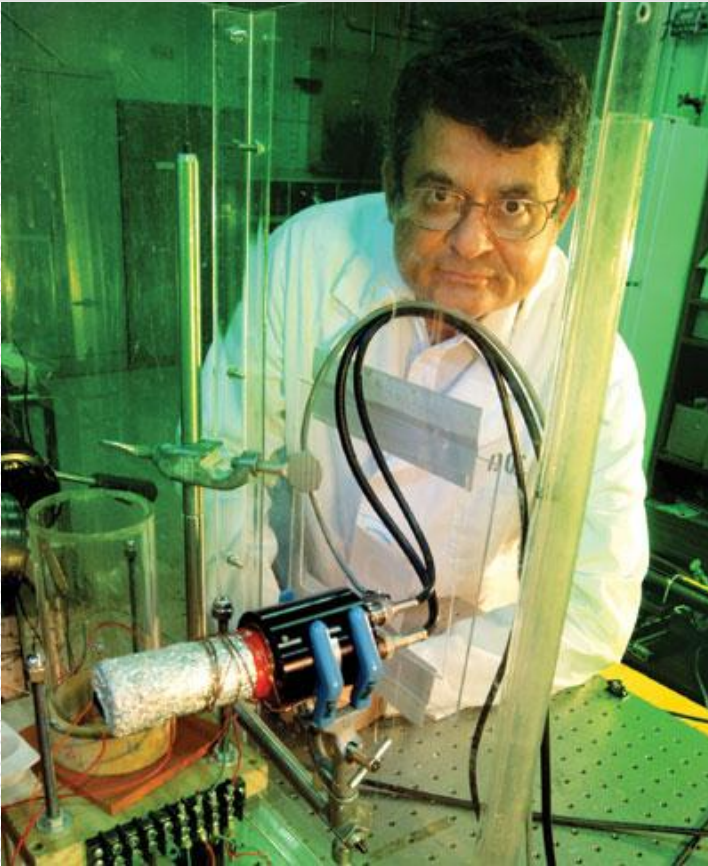
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Woo Suk Hwang



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Grantsmanship  
Academic Affairs/UMB



Rusi Taleyarkhan

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