Translation as a Scientific Framework

Brian R. Berridge, DVM, PhD, DACVP
Associate Director, NTP
Scientific Director, Division of NTP
National Institute of Environmental Health Sciences

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Translation as a Core Principle

Translational Toxicology at NTP

Our impact

Policy  Public Health  Regulation

Inform the present
- Enabling and educating stakeholders
- Timely responses
- Contextualizing data

Innovate the future
- Build mechanistic understanding
- Capability innovation
- Train next generation translational toxicologists

Our aims

Our tools
- Literature analysis
- Animal studies
- In vitro systems
- In silico/computational analytics

Aspiration = Support the evolution of toxicology from a predominately observational science to a predominately predictive science
Define hypotheses & Design a testing strategy

Knowledge Integration

Data Mining

QSAR Profiling

Bioactivity Screening

In vitro Studies

Longer-term in vivo Tests

Short-term in vivo Tests

Communicate

Human Health Effects

Primary focus on the human condition
Translation the NTP Way

Traditional Approaches
- Animals
- Humans

Government context
- Science
- Regulation/Policy

Precision Toxicology
- Anybody
- Somebody

Predictive Toxicology
- Cells
- Tissue
- Organ
- Organism

New Approaches
- Innovation
- Practice
Translation the NTP Way

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Past bias
Translation the NTP Way

Traditional Approaches
- Animals
  →
  Humans

Government context
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Precision Toxicology
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Predictive Toxicology
- Cells
  →
  Tissue
  →
  Organ
  →
  Organism

New Approaches
- Innovation
  →
  Practice

Future bias
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Questions?