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Improving Design, Evaluation and Analysis of Early Drug Development Studies (IDEAS)

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Disclaimer

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Current Statistics training

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Traditional training in Statistics is often

- very general (MSc level)
- highly specialised (PhD level)
- completely isolated from practice
- neglecting transferable skills

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What is IDEAS

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- Pan-European training network
- Focus on early drug development
- Close interaction between academia

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Objectives

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a) train early-stage researchers in state of the art methods for designing, evaluating and analysing early phase studies

b) develop novel methodology for early phase studies through individually supervised, collaborative, research projects

c) provide an international, collaborative environment in which the academic research experience is paired with the challenges of undertaking drug development within the private sector

d) raise awareness about cutting edge methods for designing and analysing early phase studies among trialists and clinicians alike

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Set-up

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- 5 academic partners
- 3 industry partners
- Several associated partners (all industry)
- 14 early stage researchers (ESRs)

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Training

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(i) individually supervised research projects

(ii) transnational, cross-sectorial secondments

(iii) network-wide training activities

(iv) individual training activities

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Secondments

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- Cross-sectorial
- Cross-national
- Minimum 3 months
- Research and daily work

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Network-wide training

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- A week-long kick-off event
- three week-long summer schools
- e-learning courses in statistical methodology
- a think tank
- surgery sessions
- dissemination workshop

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Network-wide training

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- Statistics
- Practical skills
- Networking

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More on IDEAS

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Website	www.ideas-itn.eu
email	ideas@lancaster.ac.uk
Twitter	@IDEAS_ITN

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Two projects on translation

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- Translational aspects in clinical development

ESR:	Eleni Vradi (Bayer)
Industry supervisor:	Dr Richardus Vonk
Clinical advisor:	Prof Damian OConnell (Bayer)
Academic collaborator:	Prof Thomas Jaki (Lancaster University)

- Using pre-clinical information to establish a safe dose in first-in-man studies

ESR:	Haiyan Zheng (Lancaster University)
Academic supervisor:	Dr Lisa Hampson
Clinical advisor:	Dr Malcolm Mecleod (Edinburgh University)
Industry collaborator:	Dr Alun Bedding (AstraZeneca)

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Biomarkers

EFFECTIVE INCORPORATION AND UTILIZATION OF BIOMARKERS IN NONCLINICAL STUDIES

MICHAEL R. BLEAVINS, PhD, DABT
White Crow Innovation, LLC, Dexter, MI

The Role of the Study Director in Nonclinical Studies: Pharmaceuticals, Chemicals, Medical Devices, and Pesticides, First Edition. Edited by William J. Brock, Barbara Mounho, and Lijie Fu.

- WHY we study Biomarkers in preclinical research?
  - Optimize drug development, reduce overall animal use.
  - Test a new biomarker from preclinical studies with the intention of incorporating it into future clinical trials.
  - Not every study or drug has to have a biomarker.
- There are numerous instances where biomarkers offer no value $\Rightarrow$ high attrition rates.
- A poorly choosen biomarker may confound the outcome.

Translation

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Research in Translation

Can Animal Models of Disease Reliably Inform Human Studies?

H. Bart van der Worp[1]*, David W. Howells[2], Emily S. Sena[2,3], Michelle J. Porritt[2], Sarah Rewell[2], Victoria O'Collins[2], Malcolm R. Macleod[3]

- Animal studies do not predict with sufficient certainty what will happen in humans.
- Often fundamental for understanding disease mechanisms, but sometimes less useful in predicting human diseases.
  - Insufficient power to detect a true benefit,
  - Inadequate animal data and overoptimistic interpretation
  - Lack of generalisability
  - Neutral/negative animal studies more likely are unpublished than clinical trials.

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Why translation fails

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- Publication Bias
  - What gets published
- Selection bias
  - What gets published
- Statistics
  - Lack of sample size calculation
  - Wrong analysis (means for ordinal data...)
  - Treating multiple observations from one animal as independent
  - …
- Lack of external validity

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What can be done

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Better

- animal models
- decision making about progression (scoring systems?)
- methods for indentification of biomarkers
  - Eleni's current focus around sparse selection methods
- ...

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