

Why is research important?

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UCD HIV Molecular Research Group

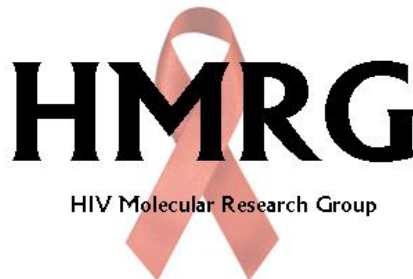
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UCD School of Medicine
& Medical Science



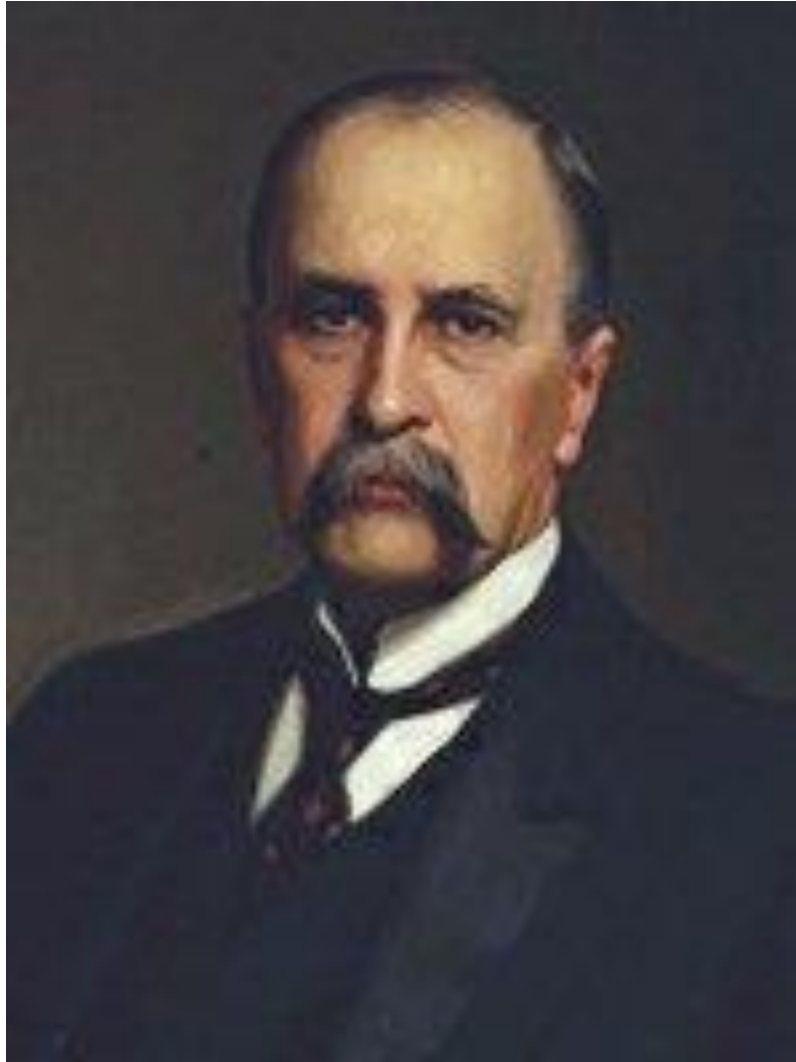
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Disclosures

Funding in form of grants, honoraria, speaker fees, travel and conference support from:

- Gilead Sciences
- ViiV Healthcare
- Janssen
- GlaxoSmithKline
- Bristol Myers Squibb
- Merck Sharpe & Dohme
- Health Research Board
- Wellcome Trust
- National Institutes of Health (US)
- European Union – Horizon 2020



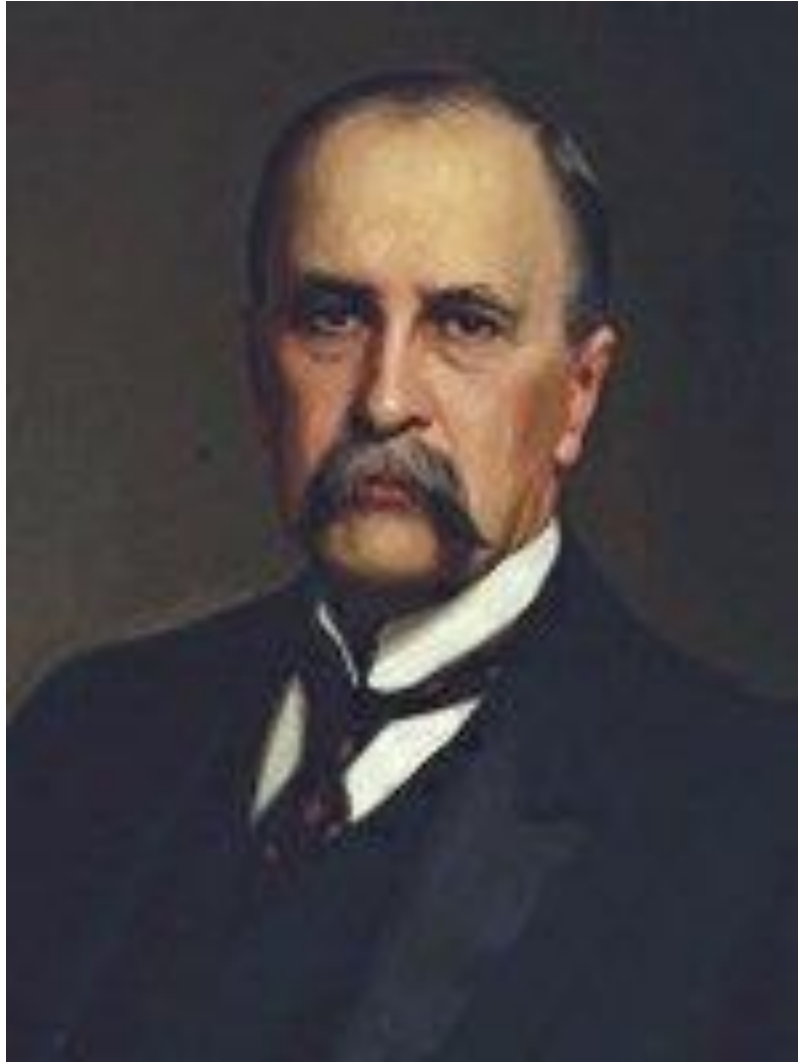
Sir William Osler

1849-1919

Founder of Johns Hopkins

Regius Professor of
Medicine at Oxford

*'Father of Modern
Medicine'*



*'The value of
experience is not in
seeing much but in
seeing wisely'*

William Osler

Why always ask why?

The practice of medicine is continually evolving

- New drugs, new indications, new drug consequences

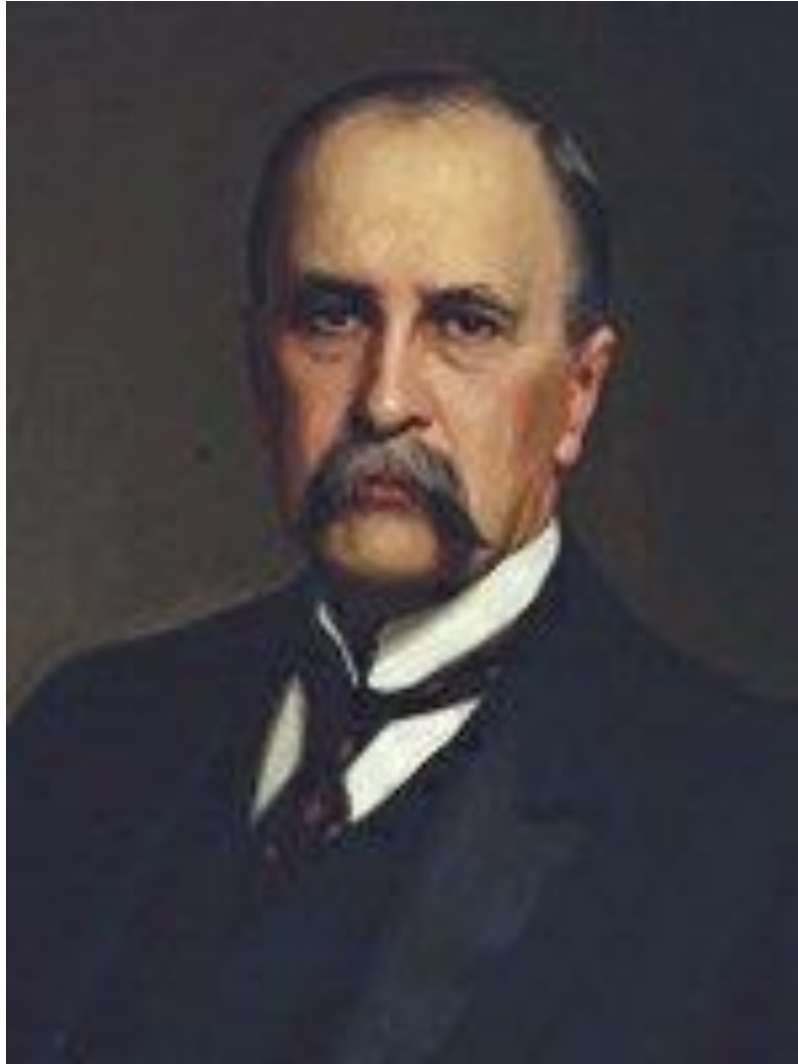
The population is continually changing

- Ageing, obesity, population shifts

Diseases continually evolving

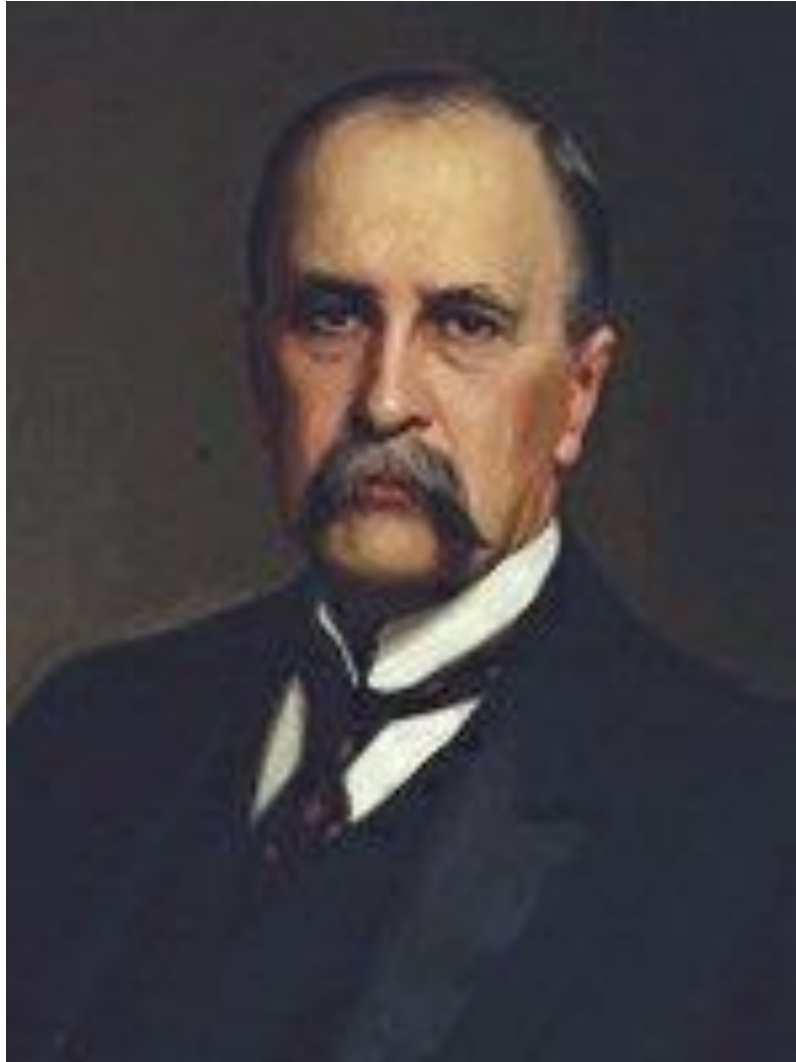
- New manifestations as people age

ALWAYS BE VIGILENT!
KEEP AN OPEN MIND



*‘The good physician
treats the disease;
the great physician
treats the patient
who has the
disease.’*

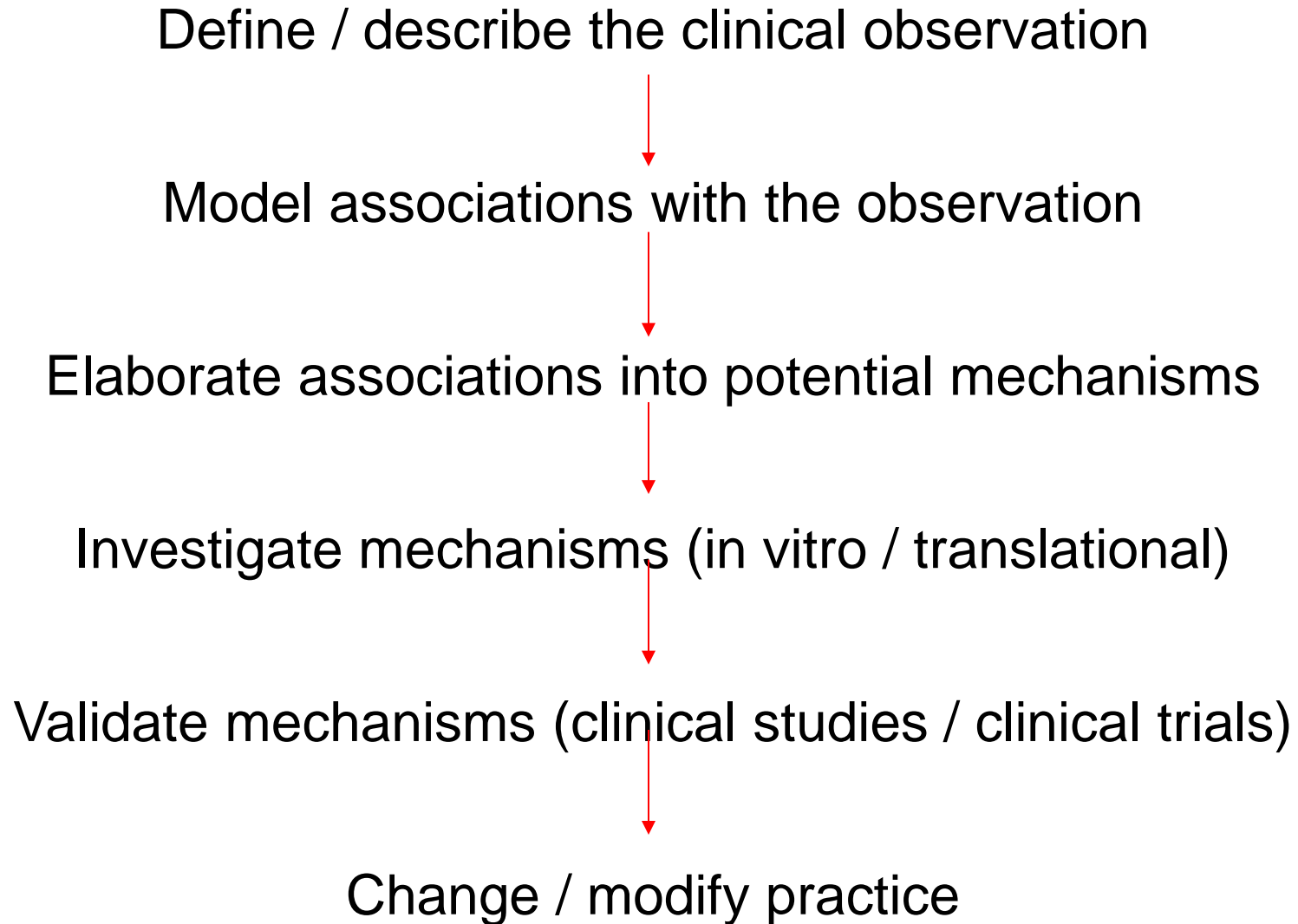
William Osler



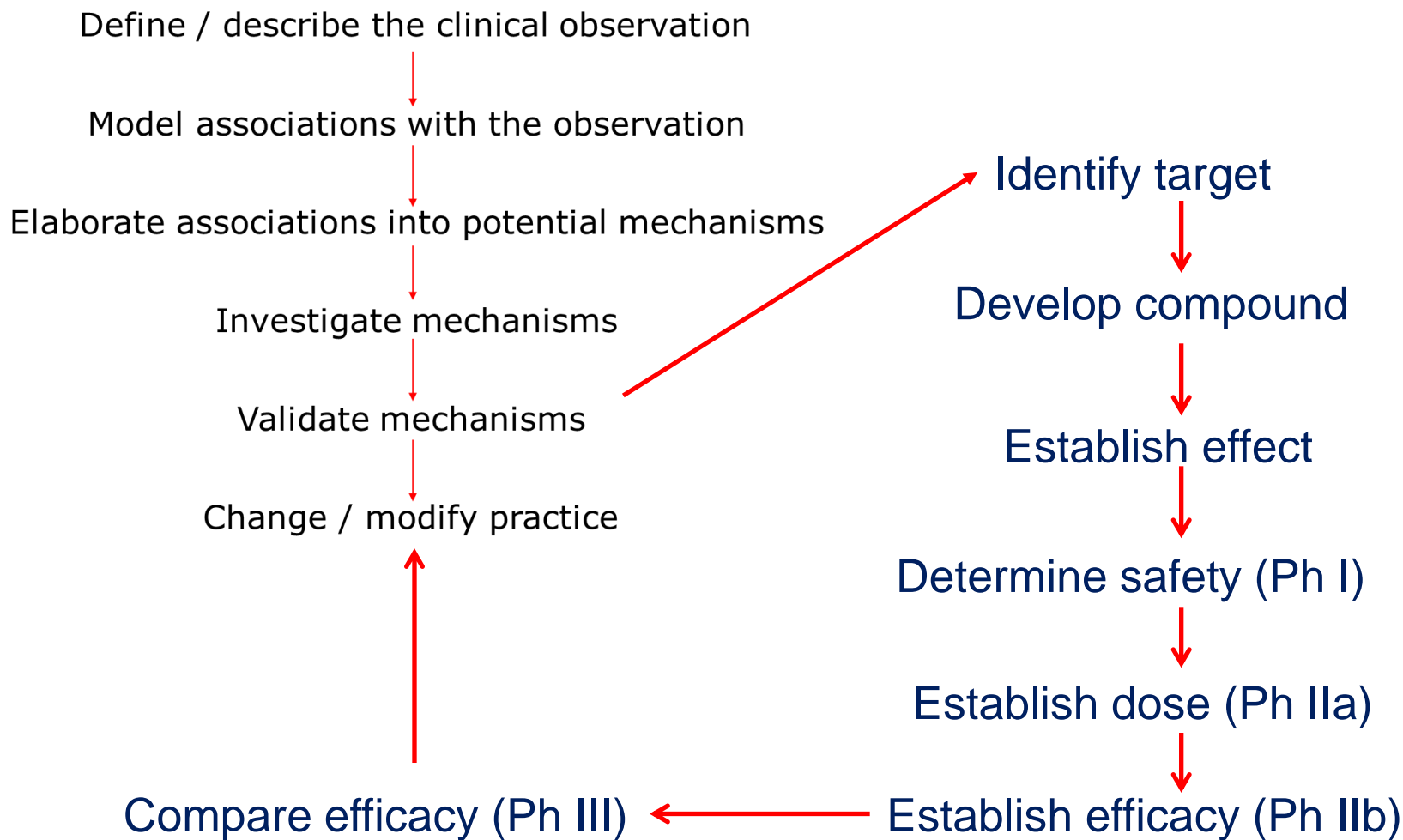
‘The effective, most vitalizing work of the world is done between the ages of 25 and 40..’

William Osler

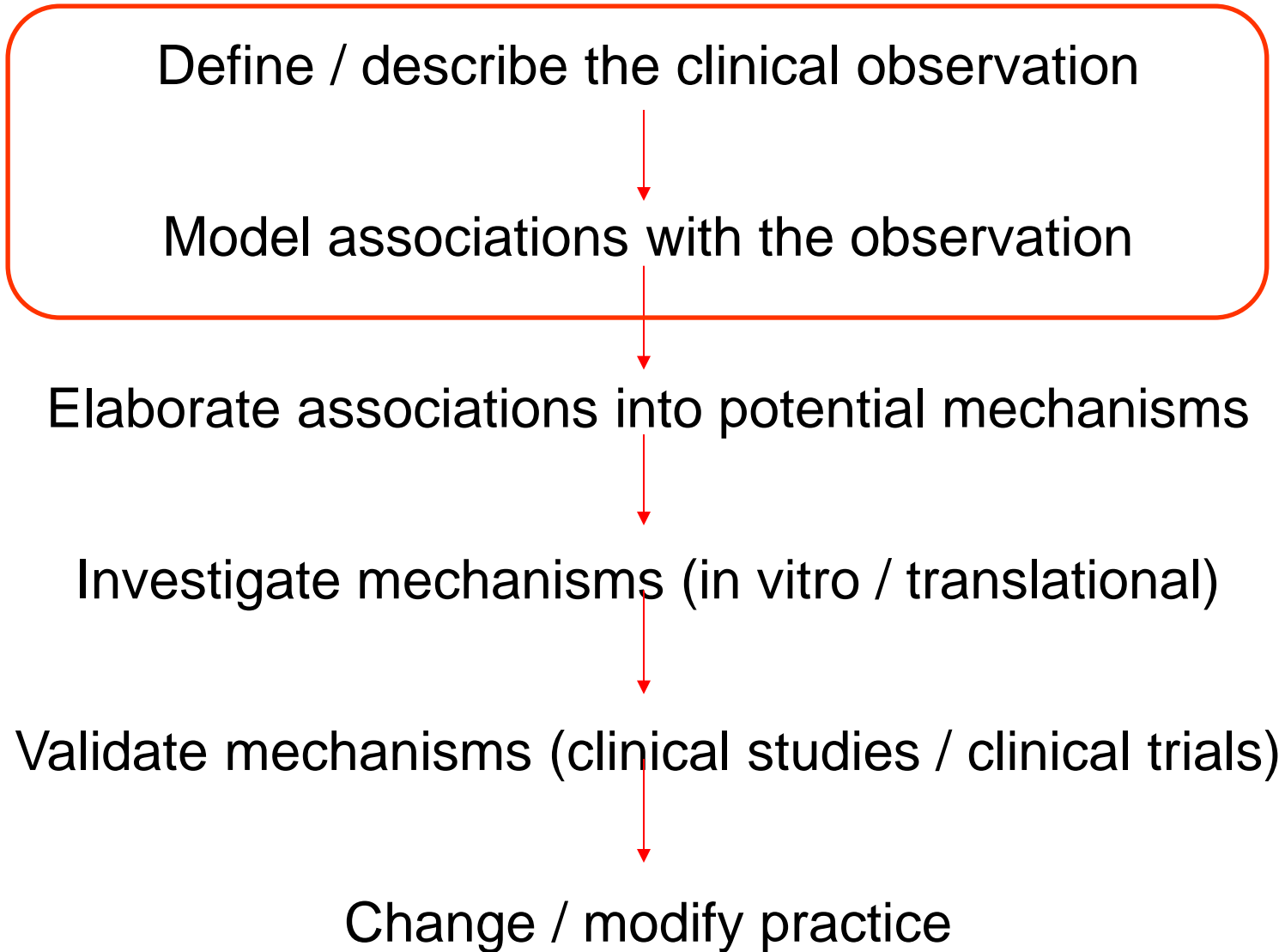
Research pathway for clinical discovery



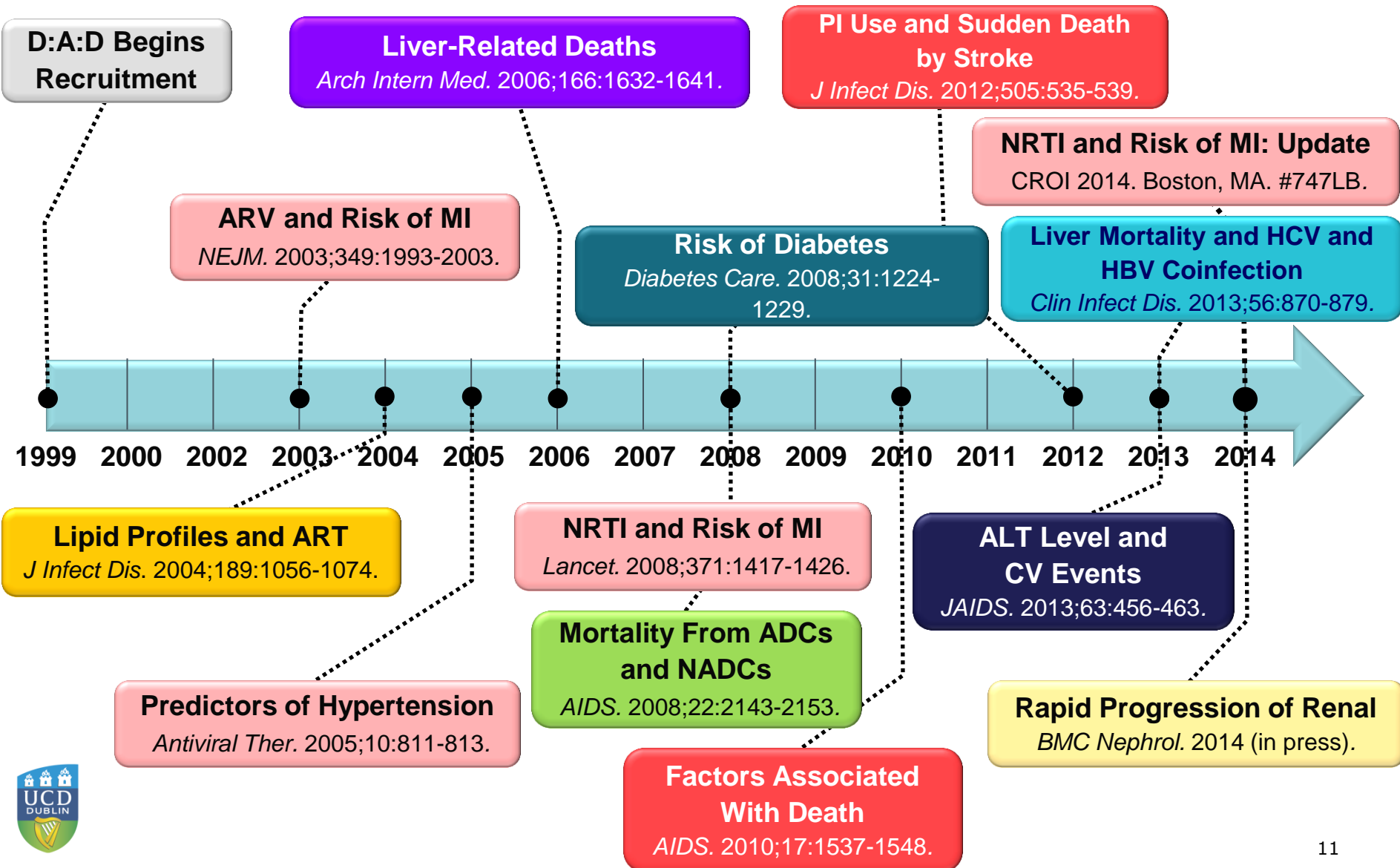
Research pathway for clinical discovery



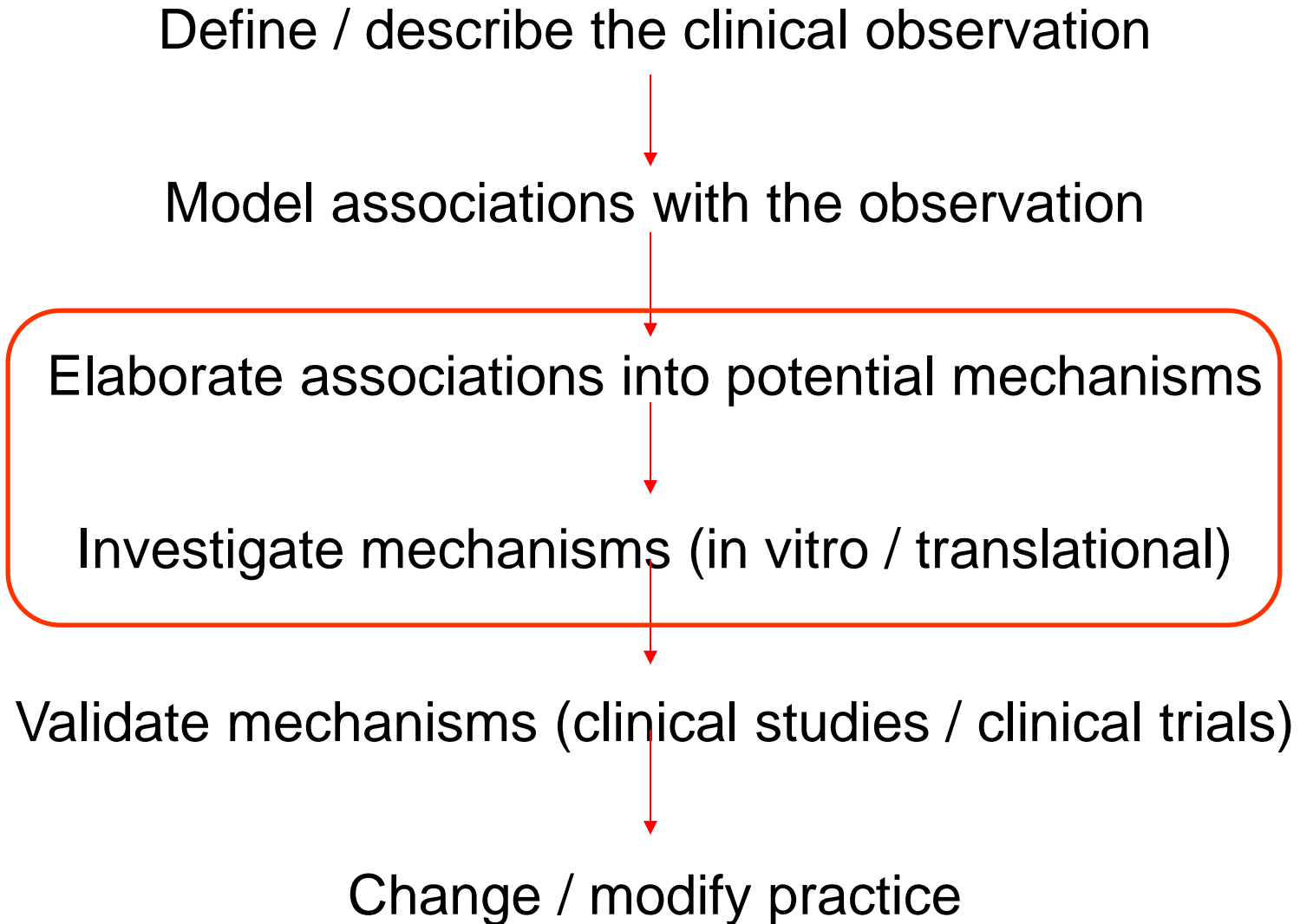
Research pathway for clinical discovery



The Data Collection on Adverse Events of Anti-HIV Drugs (D:A:D) Study



Research pathway for clinical discovery

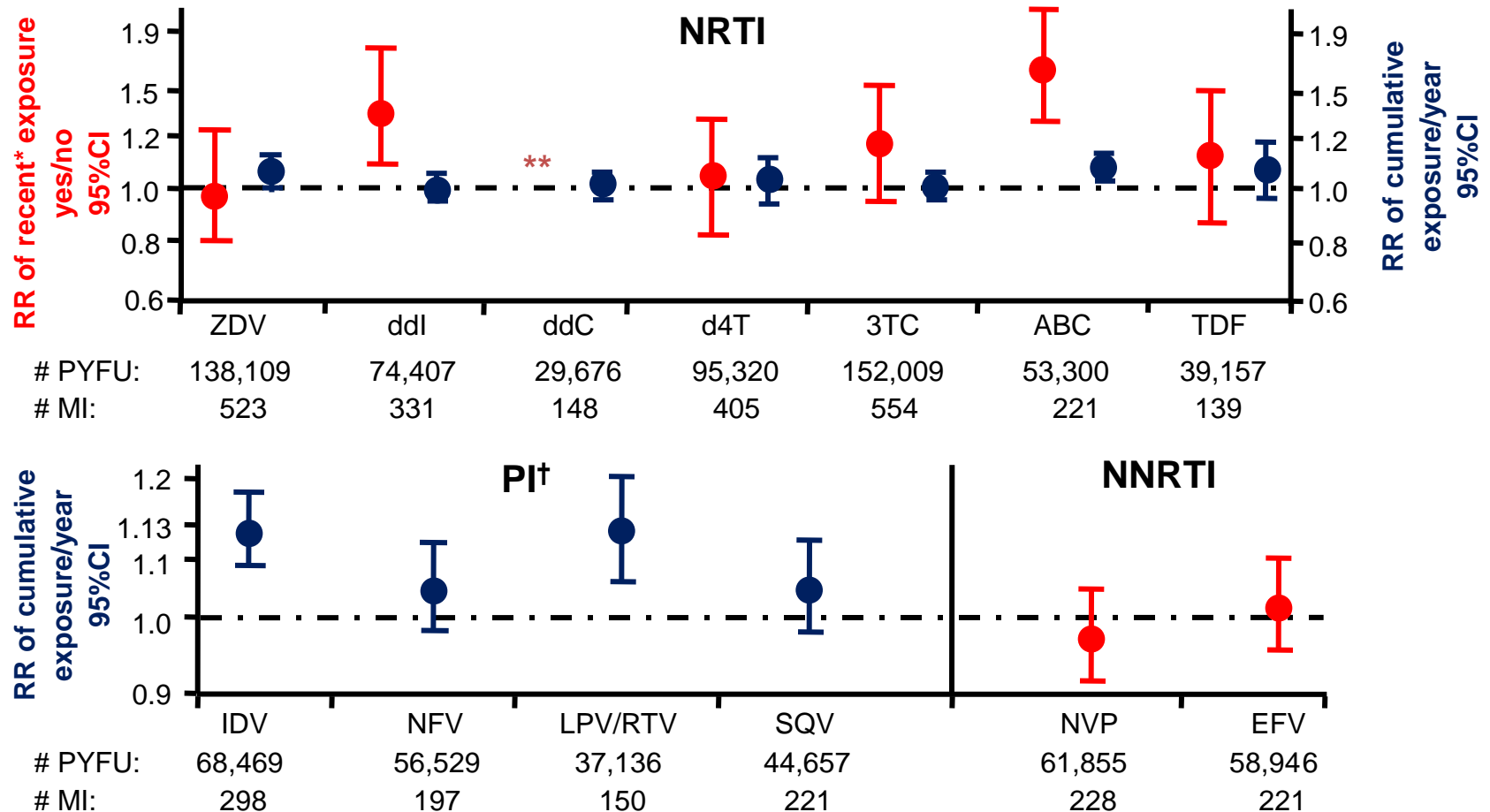


Translational research

- Most modern medical research is ‘translational’
- ‘From bench to bedside’ – vice versa!
- ‘Omics’ and bioinformatics
 - Genetics, genomics, proteomics, microbiome, epigenetics, functional assays
 - ‘Systems biology’
- Learn to collaborate and learn from your mistakes!
- *Helicobacter pylori*
 - Robin Warren
 - Barry Marshall

Cardiovascular events: Do drugs matter?

D.A.D: MI risk is associated with recent and/or cumulative exposure to specific NRTIs and PIs



*Current or within past 6 months; †Approximate test for heterogeneity: $p=0.02$; **not shown due to low number of patients receiving ddC.

CVD=cardiovascular disease; MI=myocardial infarction; RR=relative risk; PYFU=patient years of follow up.

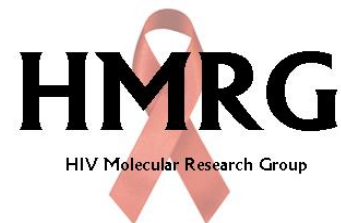
Adapted from Lundgren JD, et al. CROI 2009. Oral presentation 44LB.

Switching from Lamivudine/Abacavir (3TC/ABC) to Emtricitabine/Tenofovir DF (FTC/TDF) Based Regimen (SWIFT) Study

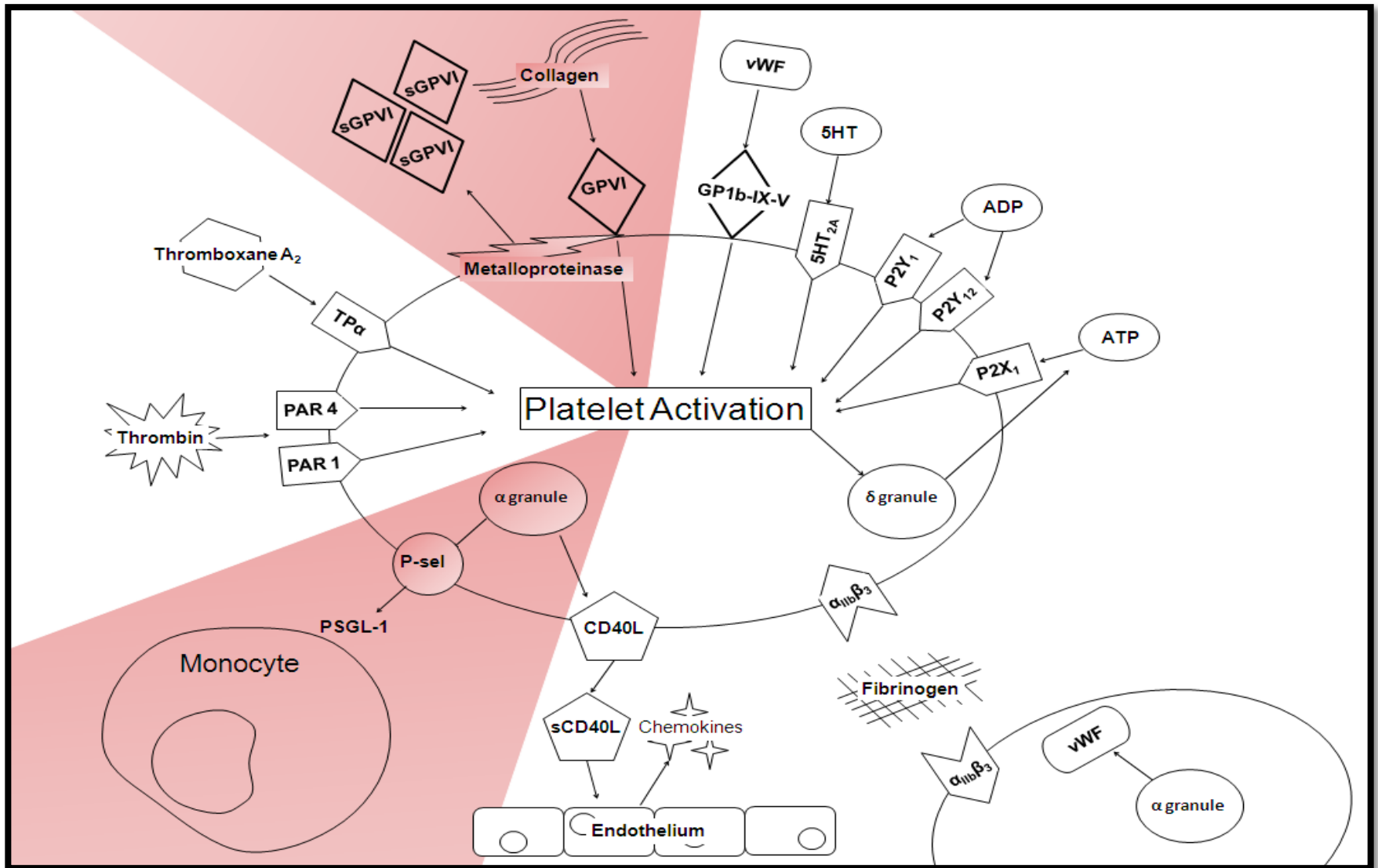
Platelet Biology Sub-study

O'Halloran JA¹, Dunne E², Tinago W¹, Denieffe S¹, Kenny D², Mallon PWG¹

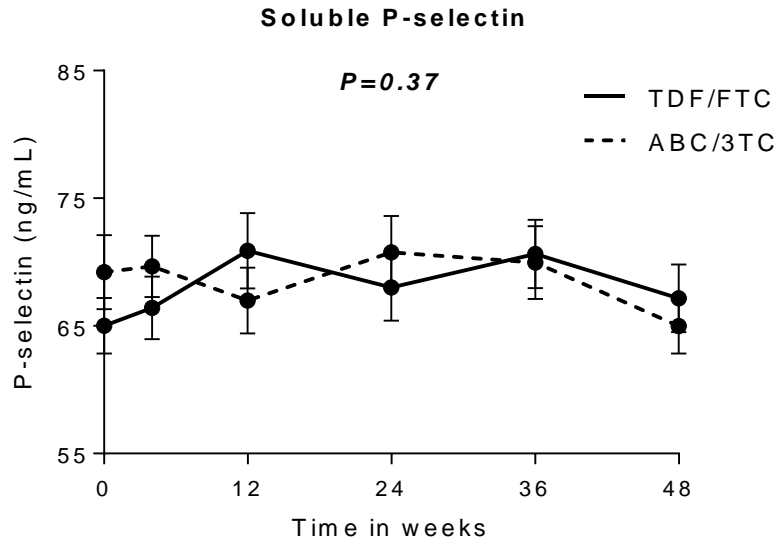
¹HIV Molecular Research Group, School of Medicine and Medical Science, University College Dublin, Dublin, Ireland, ² Cardiovascular Biology Group, Royal College of Surgeons in Ireland, Dublin, Ireland



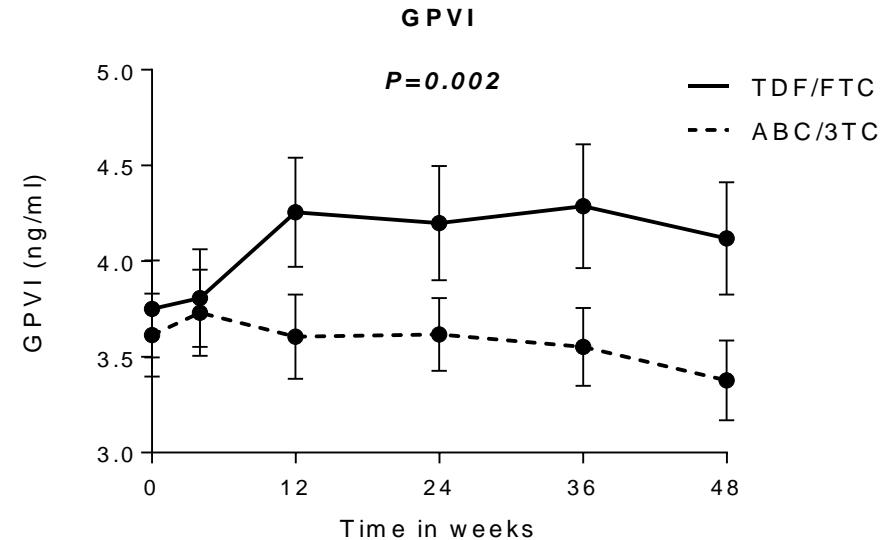
HIV and CVD – role of abacavir



HIV and CVD – role of abacavir



No between-group differences in sP-selectin from baseline to 48 weeks ($p=0.37$)



sGPVI increased to week 48 in those who switched to TDF/FTC (effect size +0.012 (95%CI 0.0041, 0.02), between group $p=0.002$).

Research pathway for clinical discovery

Define / describe the clinical observation



Model associations with the observation



Elaborate associations into potential mechanisms



Investigate mechanisms (in vitro / translational)



Validate mechanisms (clinical studies / clinical trials)



Change / modify practice

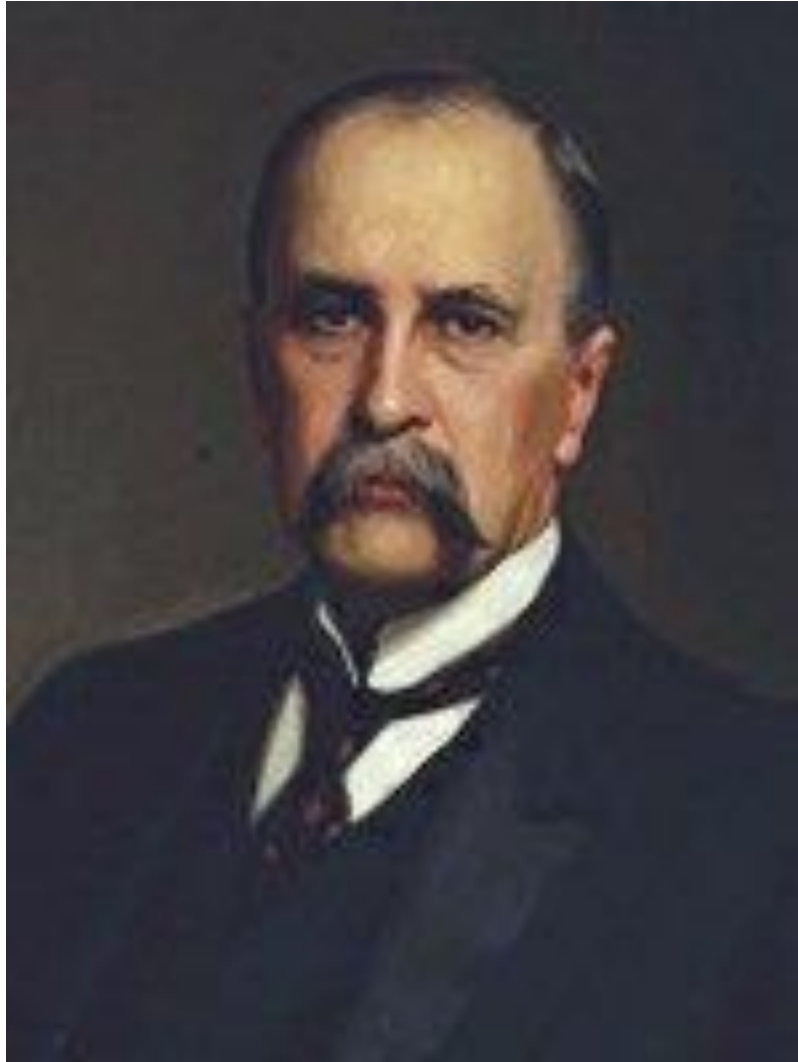
Connected Health

- Use of technology to provide healthcare remotely
- Increase personal involvement in healthcare
- Remote (home) care, lifestyle / disease management
- Increased interest with smart phone technology



Research pathway for clinical discovery

- Different research questions suit different parts of pathway:
 - Modelling – Cohort studies
 - Mechanisms – in vitro / translational studies
 - Validate mechanisms – pilot clinical trials
- Different study designs suit different research questions
- A well thought research question forms the basis of a robust study



*‘The best
preparation for
tomorrow is to do
today’s work
superbly well.’*

William Osler

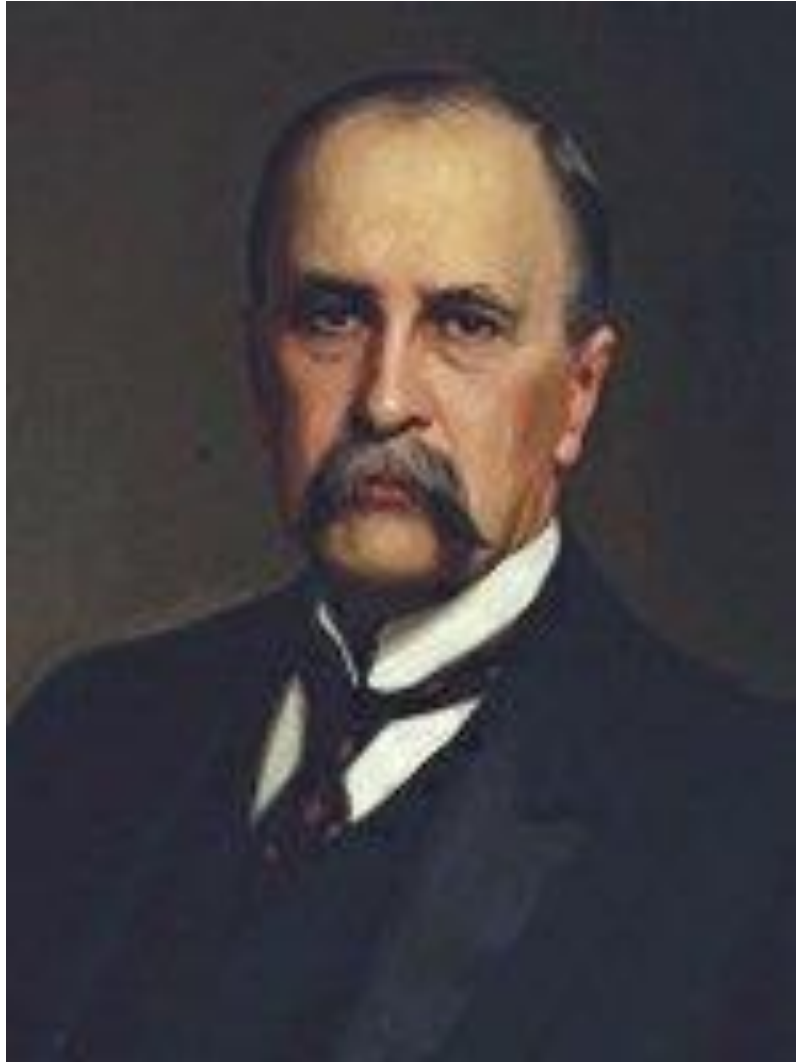
The research pathway...



Summary

- Research is FUN and FULFILLING!
- Follow established standards and you will succeed
- Lack of success is common – does not mean failure!

**REMEMBER –
PUBLICATIONS ARE FAR
BETTER THAN POSTERS!!!**



*'We are here to add
what we can to life,
not to get what we
can from life'*

William Osler