



Trinity College Dublin

Coláiste na Tríonóide, Baile Átha Cliath

The University of Dublin

School of Pharmacy and Pharmaceutical Sciences: Research

Anne Marie Healy

Head of School

04/02/2015

Pharmacists

Pharmaceutical Technologists

Pharmacologists

Pharmacy Practitioners

Pharmaceutical/Medicinal Chemists

Biotechnologists

Pharmacognosists

MDs/Clinicians

RESEARCH THEMES

New Drugs:
de novo
synthesis or
from nature

Disease,
Drug
Mechanisms
& Safety

Cancer
Research

Pharmaceutics
&
Pharmaceutical
Technology

Clinical
Pharmacy
& Pharmacy
Practice



TRINO THERAPEUTICS

SOLVOTRIN
THERAPEUTICS

Bioactivated Medicines for the 21st Century



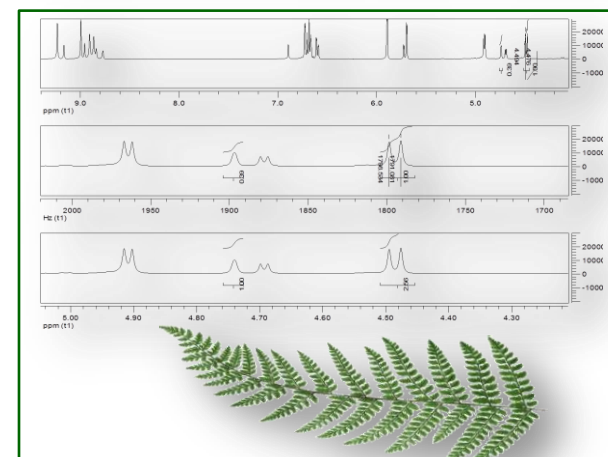
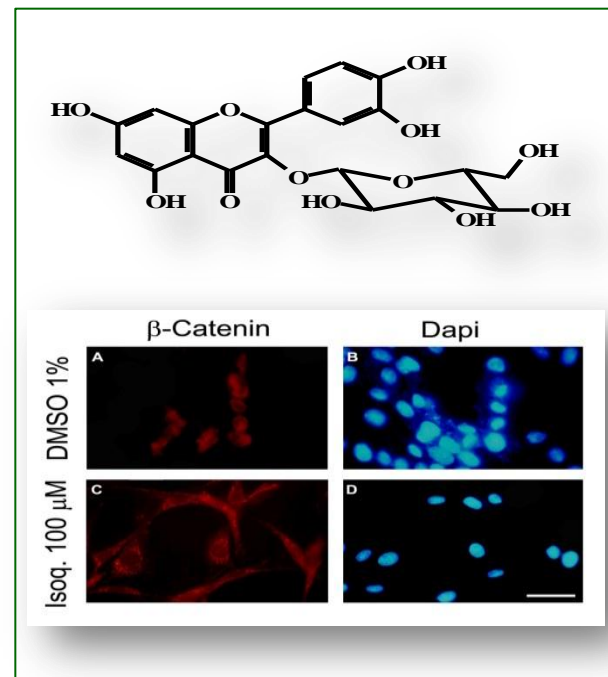
New Drugs: *de Novo* Synthesis or from Natural Products

De Novo Synthesis

- » Design, synthesis and evaluation of molecular structures as potential anti-cancer drugs
- » Pro-drug optimisation of our current candidates
- » Dual targeting drugs e.g. ER/aromatase, tubulin/aromatase
- » Design of multi-drug resistance modulators

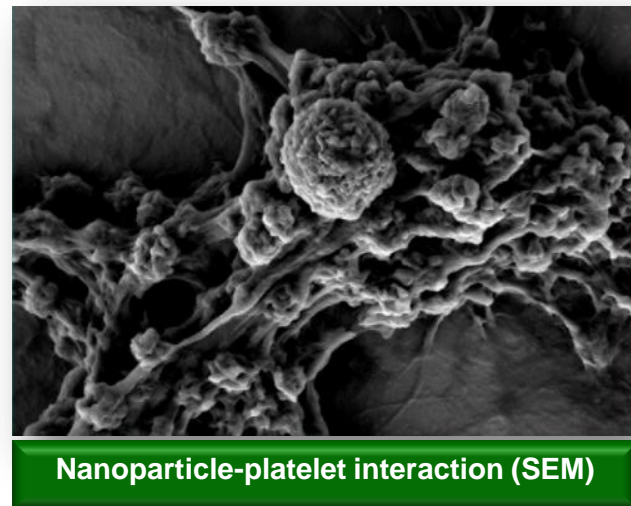
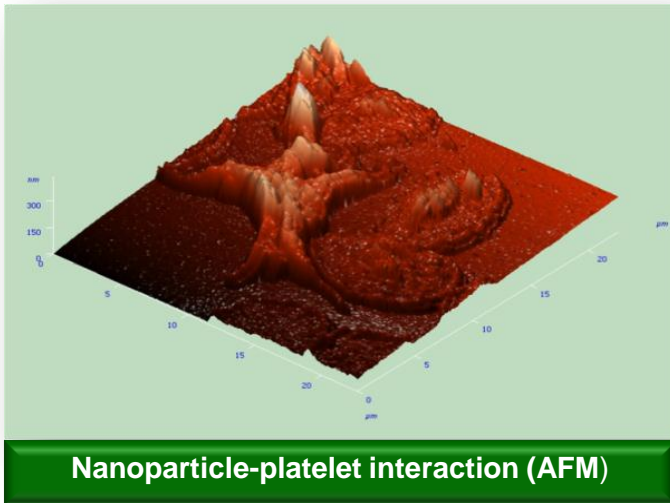
From Natural products

- » Anti-cancer lead discovery from natural sources
- » Ethno-medicine & evidence-based traditional Chinese medicine
- » Cross-hybridisation of natural molecules as anti-cancer scaffolds



Disease, Drug Mechanism & Safety

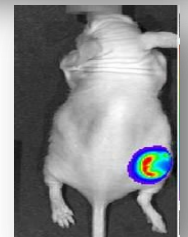
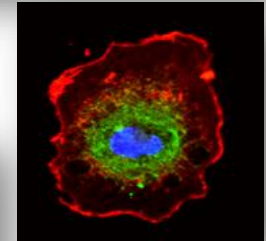
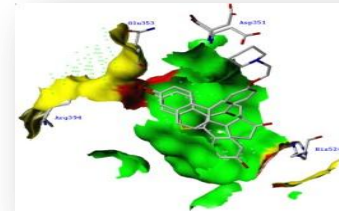
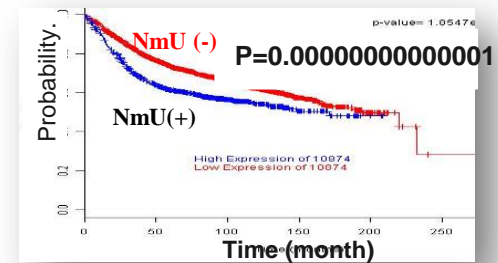
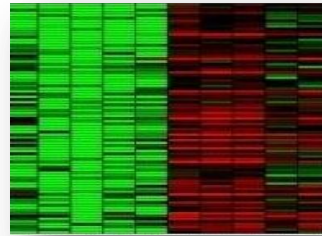
- » Platelet pathology and pharmacology of anti-platelet drugs
 - » Nanopharmacology
 - » Nanotoxicology
- } soluble & surface-bound nanoparticles
- » Pathophysiology and experimental therapeutics of inflammatory diseases
 - » Drug efficacy, toxicity & ADR evaluation



Cancer Research

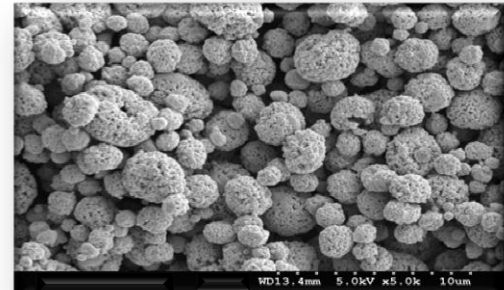


- » Target identification & validation
- » Anti-cancer drug development
- » Re-purposing "old" drugs
- » Molecular mechanisms: cancer development & drug resistance
- » Diagnostic, prognostic & drug-companion biomarkers
- » Exosomes & platelets in cancer angiogenesis, metastasis, drug-resistance
- » Nano-delivery of anti-cancer agents
- » Pharmaco-kinetics & -dynamics of anti-cancer drugs
- » Clinical trials design & development: Phase I & II

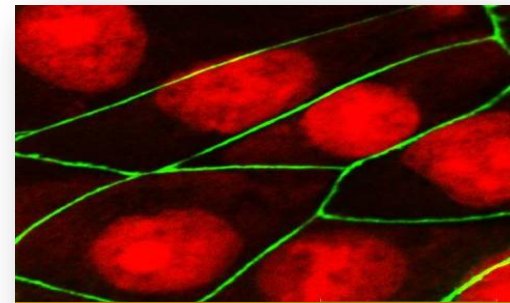


Pharmaceutics & Pharmaceutical Technology

- » Design, production and evaluation of advanced drug delivery systems
- » Optimisation of formulations for poorly soluble drugs
- » Advancing conventional formulation & manufacturing of solid dosage form medicinal products
- » Nano-sized delivery systems for small and macro-molecules
- » Pharmaceutical salts and cocrystals
- » Formulation of lipid-based delivery systems
- » Identification of absorption pathways
- » Pulmonary drug delivery
- » Drug disposition after pulmonary administration
- » Drug-transporter interactions
- » Dissolution testing and simulation



Particle engineering by spray drying for pulmonary delivery



Epithelial cells for drug absorption studies



Molecule

Material

Medicine

Clinical Pharmacy & Pharmacy Practice

- » Clinical pharmacy & pharmaceutical care of vulnerable groups
- » Pharmacy practice, medication use and patient safety
- » Health services research & evidence-based practice
- » Clinical pharmacokinetics-pharmacodynamic:
 - patient- & disease - related effects on distribution/ elimination
- » Pharmaco-epidemiology, pharmaco-economics & pharmaco-vigilance
- » Healthcare law, regulation & professional ethics in pharmacy practice
- » Educational research, workplace learning & technology-enhanced learning

