**WEBSITE TEMPLATE**

**1. RESEARCH THEME/s; PRP; GI:**

Nanomedicine and Biotherapeutics;

Pharmaceutical Materials Science and Formulation;

Centre for Advanced Technologies for Healthcare (CATCH)

**2. PI DETAILS (Name, Pure Link, Twitter Handle & Photo)**



Dr Jonthan A. Coulter

<http://go.qub.ac.uk/coulter>

@Dr\_JA\_Coulter

**3. Research focus (80 words max)**

Dr Coulter’s team focus on understanding key mechanisms which contribute to cancer resistance, developing novel therapeutic strategies to overcome these. Typically, these are alterations within the tumour microenvironment e.g. hypoxia or altered tumour metabolism.

We employ emerging pharmaceutical engineering technologies (3D-printing, microfluidics) to design novel nanomedicine solutions to solve challenges such as poorly soluble drugs. Such examples include developing controlled release platforms for sustained delivery of novel nanotherapeutics or exploiting active targeting to counter pro-survival responses to existing therapeutics.

Ultimately, the primary objective of our research is to identify novel sensitising adjuvants to existing cancer treatments, with protectable IP, that will ultimately deliver patient benefit.

**4. Research opportunities** 40 words max

Open to PhD applications in the field of:

* Nanopharmaceuticals
* Metalic/Gold nanoparticles
* Tumour metabolism
* Tumour microenvironment
* Targeted delivery
* Radiopharmaceuticals
* Radiobiology
* Targeted Immunotherapy

**5. Research students**

Name: Lydia McQuoid
PhD title: Evaluating radiation bystander and abscopal effects conferred by novel nanoparticle formulations
Years of Study: 2022-2025
Country: United Kingdom

Name: Xinyi Liu
PhD title: Elucidating the impact of attenuated CXCR4/CXCL12 signaling in prostate cancer
Years of Study: 2021-2024
Country: China

Name: Bayan Ahmed A Alkhaldi
PhD title: A nanotherapeutic approach to inhibiting hedgehog signaling in brain cancer
Years of Study: 2021-2024
Country: Saudi Arabia

Name: Meabh Doherty
PhD title: Manipulating tumour glycolysis through lactate transport to augment radiation response
Years of Study: 2020-2023
Country: Northern Ireland

Name: Cancan Yin
PhD title: PSMA targeted gold nanoparticles as effective prostate cancer radiosensitisers
Years of Study:2019-2022
Country: China

Name: Tongchuan Wang
PhD title: Exploiting hyperactive glucose transporters: a targeting mechanism for drug loaded nanoparticles
Years of Study:2019-2022
Country: China

**6. Alumni - where are they now?**

Name: Jie Feng

PhD title: Elevating intracellular oxygen using tumour metabolism suppressing nanoparticles

Years of Study: 2019-2022
Country: China

Current position: Postdoc research fellow – Coulter lab, QUB.

Name: Chris Emerson
PhD title: Development of a cell cycle computational model predicting outcome to novel nanotherapeutics.

Years of Study:2016-2020
Country: Northern Ireland

Current position: Celerion Clinical Trials - Data programmer

Name: Linsdey Bennie
PhD title: Enhancing the radiosensitivity of prostate cancer using RALA Gold nano-complexes
Years of Study:2016-2019
Country: Scotland
Current position: Scientist at pHion Therapeutics

Name: Dr Natalie Owen
PhD title: Radiation induced inflammatory signalling in prostate cancer: A target for co-functionalised gold nanoparticles
Years of Study:2015-2018
Country: England
Current position: Research Scientist at the Sanger Institute, Cambridge, England.

Name: Dr Shannon O’Neill

PhD Title: Enhancing the radio curability of prostate cancer using the anti-cancer stem cell agent, AD-01, and novel CD44-targeted gold nanoparticles

Years of Study: 2015-2018

Country: Northern Ireland

Current Position: Research scientist at Almac, NI.

**7. Community Impact/ other achievements**

**Funding**

* Prostate Cancer UK – Research Innovation Award: <https://prostatecanceruk.org/research/research-we-fund/ria19-st2-008>
* Prostate Cancer UK – PhD studentship: <https://prostatecanceruk.org/research/research-we-fund/s14-004>
* Higher Education Authority – North/South Stage 1 – Collaboration with UCD – Dr Susan Quinn – Title: Targeted gold (Au) nanocomposites as cancer radiosensitisers: <https://tinyurl.com/yuyfu6ta>
* Invest NI Proof of Concept - TRACER - TaRgeted gold (Au) nanoparticles as CancEr Radiosensitisers
* Research career overview: <https://www.researchgate.net/profile/Jonathan_Coulter>

**Media**



* Belfast Live – Grant announcement <https://tinyurl.com/yc2e7uur>
* Irish News - <https://tinyurl.com/mtz858vh>
* The Mail - <https://tinyurl.com/2p8xbf6w>

**8. Key words**

nanomedicine, gold nanoparticles, radiobiology, targeted delivery, tumour metabolism, hypoxia, immunotherapy, chemotherapy