Starving for Oxygen: Targeting Hypoxia Inducible Factor in Tumours

Presented by
Dr Kristina Cook
Charles Perkins Centre
kristina.cook@sydney.edu.au

HIF: transcription factor
- ↑ in tumours (via hypoxia & oncogenes)
- Linked to poor cancer outcomes

As hypoxia ↑, HIF activity ↑

HIF PATHWAY

Blood vessel
Tumour

Targeting HIF and p300

Disrupted by epidithiodiketopiperazines (ETPs)

ETP active moiety chelates zinc from p300

Decreases tumour growth and HIF activity

Cook et al. JBC. 2009.
Reece, Richardson, Cook et al. Mol Cancer. 2014.
High Throughput Screen

- National Cancer Institute’s Natural Products Repository (170,298 crude natural product extracts)
- Diverse land plants, marine plants and invertebrates and microbial isolates
- Identified 25 novel drugs that inhibit HIF-1α : p300 interaction