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Development and Stem Cells



Metabolic Disease
and Obesity

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Prostate cancer is an androgen dependent disease. Advanced (castrate-sensitive) prostate cancers are managed with hormonal therapy. Inevitably, these tumours adapt to low serum levels of androgens and become castrate-resistant prostate cancers. In both castrate-sensitive and castrate-resistant disease, the Androgen Receptor (AR) plays a major role in driving tumour progression. Additionally, castrate-resistant tumours metastasise to different parts of the body. The most common location is the bone, but more recently soft tissue metastases such as liver, lung and brain have emerged. The origins of each metastatic tumour and the genetic drivers responsible for their growth are currently unknown.

Research Projects

1. Characterising the androgen receptor in castrate-sensitive prostate cancer cells
2. Investigating the origins of metastatic prostate cancer

Selected significant publications:

1. **Taylor RA***, Risbridger GP*, Clouston D, Sliwinski A, Thorne H, Hunter S, Li J, Mitchell G, Murphy D, Frydenberg M, Pook D, Pedersen J, Toivanen R, Wang H, Papargiris M, Lawrence MG, Bolton DM. 2014. Patient-derived xenografts reveal that intraductal carcinoma of the prostate is a prominent pathology in BRCA2 mutation carriers with prostate cancer and correlates with poor prognosis. *European Urology*. doi: 10.1016/j.eururo.2014.08.007. *Joint authors
2. Toivanen R, Frydenberg M, Murphy D, Pedersen J, Ryan A, Pook A, Berman DM, Australian Prostate Cancer BioResource, Risbridger GP, **Taylor RA**. 2013. A pre-clinical model to identify castrate-resistant cancer repopulating cells in localized prostate tumors. *Science Translational Medicine*. 5(187):187ra71.
3. Lawrence MG, **Taylor RA**, Toivanen R, Pedersen J, Norden S, Pook DW, Frydenberg M, Australian Prostate Cancer Bioresource, Papargiris MM, Niranjan B, Richards MG, Wang H, Collins AT, Maitland NJ, Risbridger GP. 2013. A preclinical xenograft model of prostate cancer using human tumours. *Nature Protocols*. 8(5):836-48.
4. Toivanen R, Berman DM, Wang H, Frydenberg M, Pedersen J, Meeke AK, Ellem SJ, Risbridger GP, **Taylor RA**. 2011. Bioassays for cancer repopulating cells. *Stem Cells*. 29(8):1310-4.
5. **Taylor RA**, Cowin PA, Cunha GR, Trounson AO, Pedersen J, Risbridger GP. 2006. Formation of human prostate tissue from embryonic stem cells. *Nature Methods* 3(3):179-181.