



Dr Kylie Wagstaff

Head, Cancer Targeting and
Nuclear Therapeutics Laboratory



Monash Biomedicine Discovery Institute
Cancer Program

OTHER PROGRAM AFFILIATIONS



Infection and Immunity

EMAIL

kylie.wagstaff@monash.edu

TELEPHONE

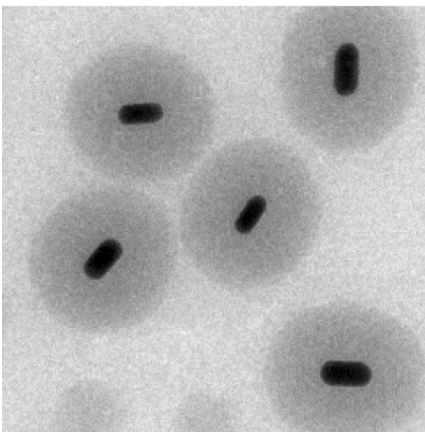
+61 3 9902 9348

Breast cancer remains one of the leading causes of death in Australia, with current treatments often causing debilitating unwanted toxic side effects. By determining the underlying cellular differences between cancer and normal cells, we are able to understand the causes of these changes and to develop new drugs and delivery agents to target them specifically.

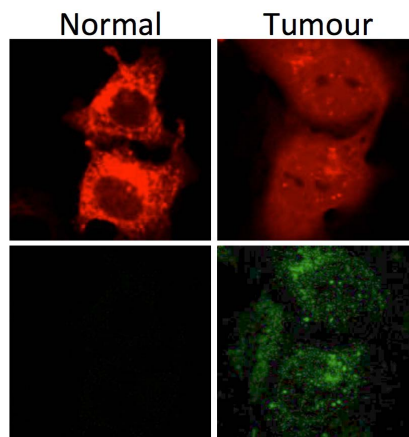
Similarly, infectious diseases such as those caused by viruses and cellular stress conditions often rely upon or generate changes in the subcellular targeting of various proteins, particularly those involved in transport between the cytoplasm and the nucleus. We identify these protein interactions and harness them to develop novel anti-viral drugs and to uncover the cellular pathways, which underpin these important conditions.

Research Projects

1. **Advanced tumour targeting agents for triple-negative breast cancer.**
2. **The role of nuclear transport in cellular stress, DNA damage and repair.**
3. **Novel anti-viral agents targeting nuclear transport.**



Laser activated, tumour targeting drug delivery particles.



Specific drug release (green) after laser activation occurs in tumour cells only.

Selected significant publications:

1. Fatima S, **Wagstaff KM**, Lieu KG, Davies RG, Tanaka SS, Yamaguchi YL, Loveland KL, Tam PP, Jans DA. 2017. Interactome of the inhibitory isoform of the nuclear transporter Importin 13. *Biochim Biophys Acta* 1864: 546-561
2. Chandrasekaran R, Lee AS, Yap LW, Jans DA, **Wagstaff KM**, Cheng W. 2016. Tumor cell-specific photothermal killing by SELEX-derived DNA aptamer-targeted gold nanorods. *Nanoscale* 8: 187-96
3. Nastasie MS, Thissen H, Jans DA, **Wagstaff KM**. 2015. Enhanced tumour cell nuclear targeting in a tumour progression model. *BMC Cancer* 15: 76
4. **Wagstaff KM**, Sivakumaran H, Heaton SM, Harrich D, Jans DA. 2012. Ivermectin is a specific inhibitor of importin alpha/beta-mediated nuclear import able to inhibit replication of HIV-1 and dengue virus. *Biochem J* 443: 851-6
5. **Wagstaff KM**, Rawlinson SM, Hears AC, Jans DA. 2011. An AlphaScreen(R)-based assay for high-throughput screening for specific inhibitors of nuclear import. *J Biomol Screen* 16: 192-200