A drug eluting balloon coated with a photo-labile drug linker conjugate. The drug-coated balloon can be moved to the target area, where after activation from UV radiation the drug will be released to the target vessel walls. The drug coating is shown to reduce toxicity and reduce neointimal hyperplasia.

- Replacement for Paclitaxel.
- Targeted delivery, photo activated.
- Successfully proven in large animal.
- Low toxicity.

THE TECHNOLOGY

The team have identified a histone deacetylase inhibitor (HDACi) referred to as MCT-3 which has significant in-vivo anti-NIH activity and low systemic toxicity.

Preliminary studies in large animals have shown the MCT-3 results to be potentially superior to PTX. These studies have also shown inhibition of molecular markers of cellular proliferation and inflammation when utilising the MCT-3 coated balloons.

A photo activated conjugate of MCT-3 which can be activated by ultraviolet light and a balloon delivery system which incorporates optical fiber technology has been developed. The MCT-3 conjugate is applied to the balloon using an ultra-sonic coating technique.

The device developed is referred to as “Lumi-Solve”. Testing of the device is shown in Figure 1. Figure 2 shows a UV-illuminated enlargement of the balloon.

The photo-angioplasty device allows for targeted delivery and activation of MCT-3.

THE OPPORTUNITY

Monash seeks a partner to co-develop this patented technology (provisional patent number: AU2019900058).

The team behind this innovative technology is led by Assoc. Professor Anthony Dear and includes a cross functional team from the Monash Institute of Pharmaceutical Sciences, the Baker Institute, Monash Faculty of Engineering and the CSIRO.

References