Novel treatment for ischemia-reperfusion injury

The Technology

UWA researchers have identified a peptide that can reduce the damage associated with reperfusion following myocardial infarction (MI). “UWA-TAT” has been shown to be effective in reducing ischemia-reperfusion injury in *ex-vivo* guinea-pig heart. Application of UWA-TAT peptide during reperfusion has been shown to decrease:

- myocardial damage (assessed as release of creatine kinase and release of lactate dehydrogenase),
- myocardial oxidative stress (assessed as the ratio of reduced / oxidized glutathione), and
- infarct size (assessed as area that did not take up nitroblue tetrazolium dye)

Activity has also recently been demonstrated without -TAT (in a nanoparticle delivery formulation tested *ex vivo*), further indicating that the peptide is efficacious.

*In vivo* experiments (rat MI models) are underway to assess efficacy *in vivo* and.

Stage of Development

Early stage – the *ex vivo* observations are currently being investigated in rat MI models.

A provisional patent application has been filed.

Commercial Opportunity

Support is required for proof-of-concept and tox/ADME studies.

This is anticipated as being carried out under an option-to-license, with a suitable partner being able to negotiate an exclusive worldwide licence to commercialise the technology.

Commercial correspondence

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Key:
Grey bars – UWA-TAT
Black bars – UWA-TAT(S) = scrambled control peptide

Figure 1 Application of UWA-TAT peptide during reperfusion decreases myocardial damage assessed as release of creatine kinase. Pre = prior to ischemia; Post = post ischemia during reperfusion; n = no. of hearts.

Figure 2 Application of UWA-TAT peptide during reperfusion decreases myocardial damage assessed as release of lactate dehydrogenase.

Figure 3 Application of UWA-TAT peptide during reperfusion decreases myocardial oxidative stress assessed as ratio of reduced glutathione/oxidized glutathione. N = no. of hearts.

Figure 4 UWA-TAT peptide decreases infarct size (damage) assessed as area that did not take up nitroblue tetrazolium dye. Image at left: heart perfused with UWA-TAT peptide. Image at right: heart perfused with UWA-TAT(S). N= no. of hearts.