Results: UII constricted rat aorta with a pEC50 = 8.02 ± 0.27 and Emax = 2.16 ± 0.24 g ($P < 0.01$). However, in the presence of AUDA (10^{-7}, 10^{-6}, 10^{-5} M) did not alter pEC50 (7.97 ± 0.25, 8.06 ± 0.33, 8.06 ± 0.24) or Emax (1.52 ± 0.18 g, 2.21 ± 0.35 g, 1.81 ± 0.20 g), respectively. UII significantly increased NCF collagen synthesis and NCM hypertrophy which was reduced with AUDA.

Conclusion: These results suggest a role for AUDA downstream of UII in the heart but not in rat aorta.

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Vascular/Hypertension

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16-Year Retrospective of Fatal Aortic Dissection: A Review of Coronial Post-mortems

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Background: Aortic dissection is increasingly common and often has fatal outcomes. Yet the diagnosis of this condition has been clinically challenging despite advances in cross-sectional imaging.

Aims: We studied fatal aortic dissection to delineate clinical demographics, the prevalence of risk factors and symptoms, and underlying aetiologies, in order to improve clinical diagnostics and management.

Methods: A retrospective review of all cases of autopsy verified death due to aortic dissection between 1993 and 2008 was performed at the Department of Forensic Medicine, Glebe. Patient demographics including medical history, circumstances of death, cardiovascular pathology, and detailed morphology and histopathology of the dissection for each case were analysed.

Results: 369 cases of aortic dissection were examined. Subjects were 67 ± 14 years, 55% male ($n = 203$), 27 ± 6 kg/m^2 BMI. Stanford type A dissection accounted for 78% of cases. 71% of cases <60 years ($n = 90$) were male compared to 50% ($n = 139$) >60 years. 78% of deaths were late presenters. Atherosclerosis was identified in 73% cases, systemic signs of HT in 58% and valvular HD in 19%. Only 10% ($n = 38$) of cases were identified to have cystic medial necrosis and only 3.5% ($n = 13$) had a history or displayed features of a connective tissue disease. 12% ($n = 44$) of cases had aneurysm formation that was identified at the time of autopsy.

Conclusion: Late presentation and lack of clinically recognisable symptoms accounted for the majority of cases. Male gender and atherosclerosis and hypertension remain the main risk factors. Despite improvements in imaging and treatment, poor prognosis remains a feature of aortic dissection.

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A Novel Biotechnological Approach for Targeted Regenerative Cell Therapy and Molecular Imaging of Atherothrombosis

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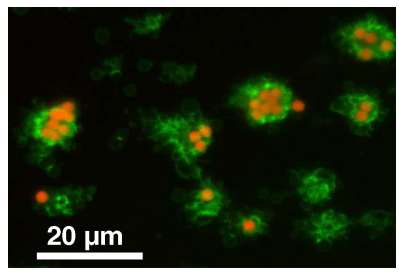
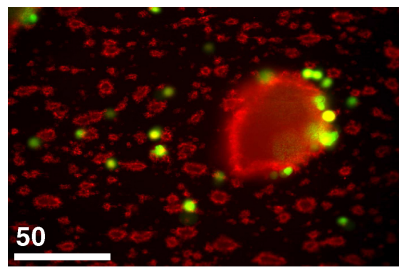
Targeted delivery increases the efficacy of drugs and regenerative cell therapy while reducing the dose required along with negative side effects. Similarly, targeted delivery of imaging agents will localise and retain them at the disease sites, enhancing the sensitivity and accuracy of current imaging techniques. Here we report a novel method employing *Staphylococcus aureus* sortase A enzyme for the conjugation of a single-chain antibody (scFv), anti-GPIIb/IIIa-scFv to nanoparticles and cells for imaging and cell delivery in cardiovascular disease. This scFv specifically binds to activated platelets, which play a pivotal role in atherosclerosis, thrombosis and inflammation. The scFv was successfully conjugated to magnetic particles of iron oxide, which are powerful contrast agents for MR imaging and also to model cells (CHO). The conjugation efficiency was between 50–70% and the bioactivity of the scFv after coupling was preserved. The targeting of scFv-coupled CHO cells and nanoparticles to activated platelets was strong as demonstrated in in vitro static adhesion assay, under shear stress in a flow chamber system and in intravital microscopy experiments. This unique biotechnological approach combining biological and chemical coupling provides a highly useful tool for regenerative cell therapy (e.g. stem cells) as well as targeted molecular imaging in cardiovascular disease and beyond.



scFv-particles (orange) bound to thrombi (green) in flow chamber



scFv-CHO cells (green) bound to thrombi (red) in flow chamber

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