

P020 Integrin-like TIED in platelets; a potential role in thiol modification

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The platelet-specific integrin $\alpha_{IIb}\beta_3$ has endogenous thiol isomerase activity, predicted by the presence of the enzymatic active sites, GxCxCGxCxC, within the 4 EGF-like repeats of the β -subunit. This activity may modulate integrin conformation by the re-arrangement of disulphide bonds. Ten Integrin EGF-like Domains (TIED) is a stand-alone β -integrin-like protein identified from the human genome, consisting of 10 integrin cysteine-rich EGF-like repeats, preceded by a signal peptide. TIED was identified in platelets by RT-PCR of human platelet-pure RNA, and TIED protein was detected by western blotting (Mr 54kDa). TIED was identified in the activated platelet releasate by western blotting, and localised to the platelet granulomere with fluorescence microscopy. Purified recombinant TIED was assayed for thiol isomerase enzymatic function in a standard RNase refolding assay. Thiol isomerase activity of TIED was dose- (0.1 μ M- 2 μ M) and time-dependent (24hrs-48hrs), and was comparable to the activity of protein disulfide isomerase (PDI) at equivalent concentrations and time-points. We demonstrate therefore that TIED functions as a thiol isomerase enzyme, and is present in platelets. The function of this protein in platelets remains to be elucidated.