001. A new level of control of thrombosis

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Platelet activation and coagulation are initiated by discrete cleavage of peptide bonds in platelet receptors and coagulation factors. Old and new anti-thrombotic drugs block these chemical events and effectively control unwanted thrombosis. It has become clear in the last few years that thrombosis is also regulated by cleavage of the next most common covalent bond linking the protein backbone – the disulphide bond. Disulphide bonds link the sulphur atoms of cysteine amino acids. Cleavage of certain disulphide bonds (known as allosteric disulphides) in platelet receptors and coagulation proteins has been found to be critical for initiation of thrombus formation in mice and likely also humans. Small molecules that target the factors that cleave the disulphide bonds are in clinical development. An overview of this emerging biology will be presented.