Aston University

14B. Anna Hine; Anupama Chembath; Mohammed Ashraf; Andreas Plueckthun; Erich Michel; Yvonne Stark; Birte Hoecker; Noelia Ferruz-Capapey; Josef Kynast; and Ben Wagstaffe: *PRe-ART: Predictive Reagent Antibody Replacement Technology*

Reagent antibodies are used extensively in research, typically to bind or capture protein targets. Unlike well-characterised therapeutic antibodies, about half of the commercially available *reagent* antibodies have previously been shown to not function correctly either in terms of their specificity or else in recognising their target at all. PRe-ART (Predictive Reagent Antibody Replacement Technology) aims to replace conventional reagent antibodies with sequence-defined, designed armadillo repeat proteins (dArmRPs), capable of conserved and specific binding of extended peptides. PRe-ART uses a feedback loop of experimental synthesis and evaluation with computational modelling to iteratively develop the properties of novel dArmRPs. Ultimately, PRe-ART aims to create an encyclopaedia of pre-designed and experimentally pre-selected modules that may be combined to generate unique binding molecules that function as antibody replacements. Progress to date in terms of library synthesis, screening and modelling will be presented.