26G-ISMS02 **Development of Macrocyclic Peptide Targeting Ebola Glycoprotein**

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Ebola virus (EBOV), a member of the filovirus family, causes severe hemorrhagic fevers with 50-90% lethality. The EVOV glycoprotein (GP) is the sole virally expressed protein on the virion surface and is essential for attachment to the host cell and for membrane fusion. Hence, the EBOV GP is a critical drug target for combatting ebola virus. However, a truncated GP variant (sGP) that is secreted from infected cells may act as a decoy for drug candidate. As a result, high affinity and specificity, such as an antibody, is required for any drug targeting EBOV. We have previously developed a system, known as the RaPID system, to evolve macrocyclic peptides that specifically and strongly bind to a target protein and regulate function of the protein. The RaPID system combines ribosomal expression of a peptide library including non-proteogenic amino acids with ribosomal display, allowing expression of vast macrocyclic peptide libraries of up to trillions of macrocyclic peptides. In this poster, we introduce our strategy to develop macrocyclic peptides that bind to EBOV GP, the most potent of which has a dissociation constant of 6.3 nM, which is comparable of that of an antibody. The small size and potency of these macrocyclic peptides will give a big advantage in choice of strategies for functionalization, as well as easier handling and large scale production. They may therefore open up new strategy to combat EBOV.