HETERO BI-FUNTIONAL POLYMER-POLYPEPTIDE CONJUGATES

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ABSTRACT

Polymer-drug conjugation has recently received significant attention in the polymer community. This interest is largely sparked by the developments in site-specific conjugation and the ability to target unique surface-structures within the body, by exploiting target-directing ligands. Many previous studies focused on increasing the drugs half-life, through poly(ethylene glycol) (PEG) conjugation, PEGylation. This study makes use of polyvinylpyrrolidone (PVP), as an alternative to PEG, because it has been shown to provide a longer plasma half-life and favourable tissue distribution.[1] It has previously been described that xanthate-based Reversible Addition-Fragmentation Chain Transfer (RAFT) agents, with triazole-based leaving groups, yield well-controlled PVP.[2] This allows the introduction of multiple functionalities via Huisgen click-chemistry. It is also well known that xanthate end-groups can be manipulated, post-polymerization, into various functionalities.[3] Thus, bi-functional PVP can suitably be tailored for both the introduction of polypeptides, as well as target-directing ligands. Nano-vehicles, capable of target-specific delivery of therapeutic polypeptides, can be induced via self-assembly. The most recent developments in this work will be discussed.

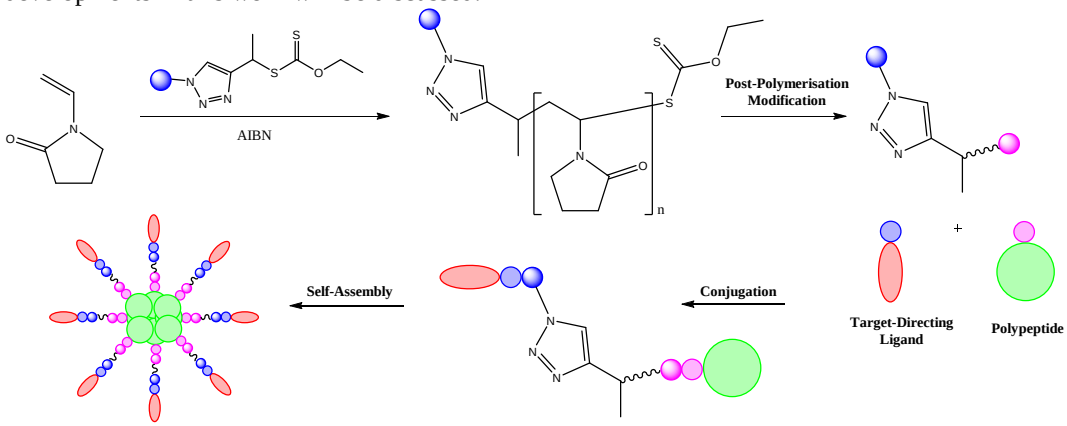

Fig. 1: Conjugation and Self-Assembly of Therapeutic Nano-Vehicle

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References

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