

### Benzyloxycarbonyldedipeptides hydrogelators for drug delivery

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The bottom-up approach to functional nano-objects relies on the hierarchical self-assembly of low molecular weight building blocks. Amino acids and peptides are nature's preferred building blocks. Peptide-based self-assembled hydrogels have triggered remarkable research interest in recent years owing to simple synthetic procedures, chemical variability and to biocompatibility and biomimetic properties, which warrant many technological and biomedical applications [1]. Dehydrideptides N-capped with bulky aromatic residues emerged from our research as effective hydrogelators endowed with resistance to proteolysis [2]. Here in we report the synthesis of new hydrogelators based on *N*-benzyloxycarbonyldehydrideptides. These compounds can be easily prepared from the corresponding  $\beta$ -hydroxypeptides by treatment with *tert*-butyldicarbonate (Boc<sub>2</sub>O) and 4-dimethylaminopyridine (DMAP) followed by treatment with *N,N,N',N'*-tetramethylguanidine (TMG). The critical gelation concentration (cgc) of *N*-benzyloxycarbonylphenylalanyldehydrophenylalanine was 0.3 wt% in phosphate buffer pH 7.3 (Figure 1).

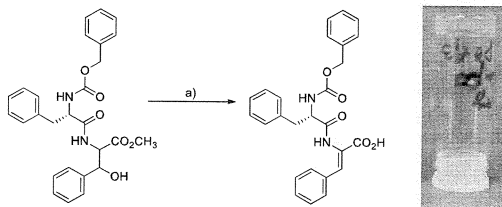


Figure 1. Hydrogel obtained from benzyloxycarbonylphenylalanyldehydrophenylalanine. a) i. Boc<sub>2</sub>O / DMAP, TMG; ii) NaOH 1 M.

Potential applications, as drug nanocarriers, can be envisaged for this type of hydrogels, for example, as topical formulations.

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#### References:

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