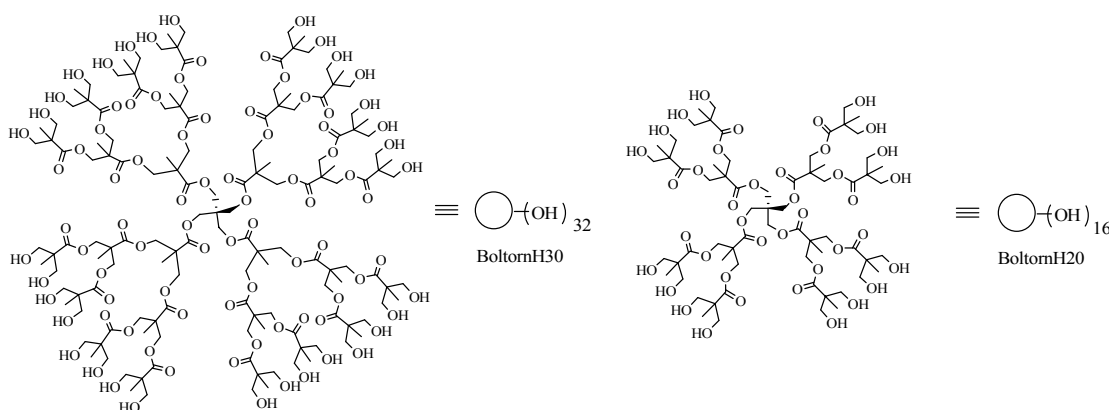


## GLYCODENDRITIC STRUCTURES : PROMISING NEW ANTIVIRAL DRUGS

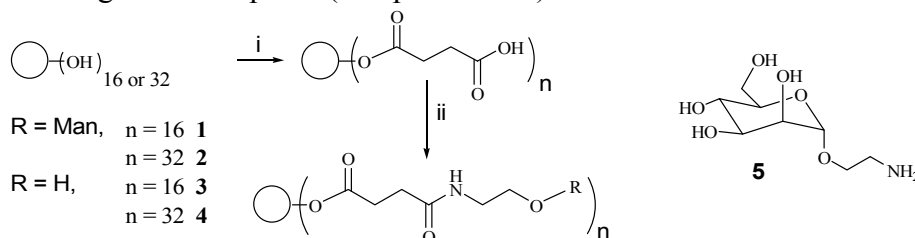
F. Javier Rojo

*Grupo de Carbohidratos, IIQ, CSIC; Av. Américo Vespucio s/n  
41092 Sevilla, SPAIN;  
javier.rojo@iiq.csic.es*

The discovery of the role that the C-type lectin DC-SIGN plays during HIV propagation and infection converts this protein in a new target for developing new antiviral drugs. DC-SIGN recognizes selectively high-mannose structures found in envelope viral glycoproteins such as gp120 (HIV) and GP1 (Ebola).<sup>[1]</sup>



We have designed and prepared multivalent glycodendritic structures based on dendritic hyperbranched polymers (Boltorn H20 and H30) and mannose linked to the core through a small spacer (compounds **1-4**).<sup>[2]</sup>



i) succinic anhydride, DMAP, Py, 50°C, 15h, 100%; ii) HOBT, DIC, **5** or HOCH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>, 24h, 60%- 88%.

We have used these glycodendritic structures in an infection experiment using Ebola virus-pseudotyped lentiviral particles and susceptible cells to be infected (expressing DC-SIGN). Preliminary results obtained in these infection experiments *in cis* and *in trans* indicate that compounds having 32 mannose units (3<sup>rd</sup> generation) are able to inhibit infection below  $\mu\text{M}$  range.<sup>[3]</sup> Dendritic structures without carbohydrates have been used as controls and don't show any significant antiviral activity. Also, cell cytometry and Biosensors based on SPR have been used to analyze the binding process between different ligands and the receptor DC-SIGN.

### References

- [1] Y. Van kooyk, T.B.H. Geijtenbeek, *Nat. Rev. Immunol.* **2003**, *3*, 697-709.  
 [2] E. Arce *et al.* *Bioconjug. Chem.*, **2003**, *14*, 817-823.  
 [3] a) F. Lasala *et al.* *Antimicrob. Agents Chemother.*, **2003**, *47*, 3970-3972; b) J. Rojo, R. Delgado *J. Antimicrob. Chemother.* **2004**, *54*, 579-581.