# A Concise Total Synthesis of the ABO Blood Antigens

Keir Penston, David Lim and Francesca Paradisi

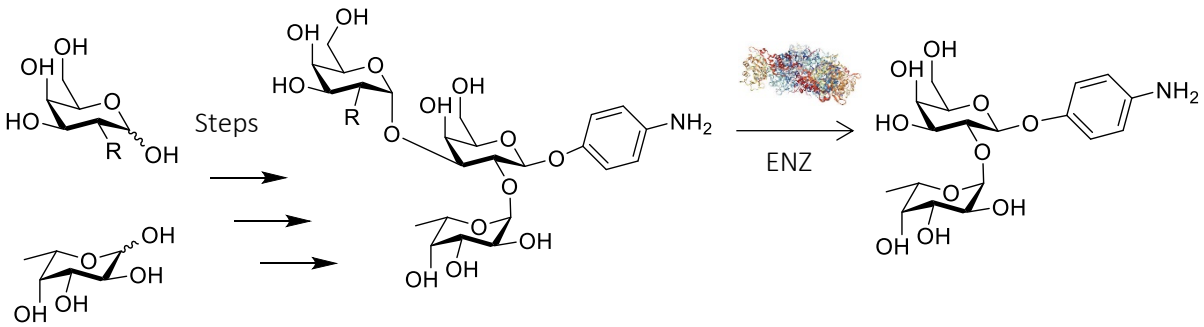
(Department of Chemistry, Biochemistry and Pharmacy, University of Bern, Freiestrasse 3, Bern, Switzerland)

keir.penston@unibe.ch

Providing an efficient pathway for the conversion of blood types A and B to the 'universal' donor O would significantly increase the supply for blood transfusions.[1] Although there are several examples on the use of enzymes for this conversion, their specificity or activity is a hurdle for medicinal applications.[2] Furthermore, given the fact that these antigens suffer from extortionate commercial pricing, providing a shorter synthetic route to access these targets is highly desirable.[3]

Currently, a total of three enzymes is required to achieve this goal. [4,5] Therefore, lowering the number of enzymes required for this cascade will enable a more sustainable and easier access to the O blood type, mitigating the need to express an extra enzyme, resulting in a more cost-efficient outcome.

Herein, we report the total synthesis of the A and B trisaccharide's. Starting from cheap and commercially available starting materials, we could access the A and B terminal antigens in 14 and 13 steps, respectively. The availability of a shorter and more concise synthesis will allow access to valuable substrates required for developing a more efficient enzymatic access of the O antigen.

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