

5PS-32-03

**KODE™ TECHNOLOGY ALLOWS THE ATTACHMENT OF CARBOHYDRATE BLOOD GROUP ANTIGENS TO RED CELLS**

S.M. Henry<sup>1</sup>, T. Carroll<sup>2</sup>, T. Frame<sup>3</sup>

<sup>1</sup> *AUT University, Auckland, New Zealand*

<sup>2</sup> *CSL Limited, Melbourne, Australia*

<sup>3</sup> *Immucor, Inc, Houston, TX, United States of America*

**Background:** It is a well established concept that natural glycolipids will insert into red cell membranes. KODE™ technology represents designer synthetic glycolipids which can be synthesised and inserted into red cell membranes.

**Aims:** Creation of specialised red cells suitable for antibody analysis and quality control.

**Methods:** A variety of synthetic glycolipids bearing A, B, H, acquired-B, Lewis a and other blood group related glycotopes were synthesised and then inserted into group O red cells.

**Results:** Using KODE™ technology red cells were able to be created which precisely and reproducibly expressed desired A, B, H, acquired-B and Lewis a antigen. Modified cells were stable, reacted as expected and were compatible with all available serological platforms.

**Conclusions:** KODE™ technology offers for the first time the ability to controllably attach characterised carbohydrate antigens onto red cells. Synthetic glycolipids were found to offer significant advantages over the natural molecules. Their features include: improved aqueous solubility, ability to restrict or make generic the antigenic determinant, excellent batch to batch reproducibility, purity and homogeneity, capacity for production of unlimited quantity, ability to bear chemical modifications (e.g. AcqB), superior insertion (compared to natural glycolipids both in efficiency and in low temperature insertion) and excellent stability of transformed red cells. KODE™ technology will have applications in research laboratories and clinical settings. Email: [kiwi@aut.ac.nz](mailto:kiwi@aut.ac.nz)