Background
Since clinical significant antibodies can cause hemolytic transfusion reactions, it is essential to consider them when transfusion is required. Our report is based on an 81-year old Caucasian male patient with anti-e, -Ce and -Fya who required mitral valve surgery.

In consultation with the surgeon, 4 fully compatible red blood cell units were provided for the intervention.

Due to intraoperative complications, the patient required heart-lung machine support. As another 12 units were requested the challenge was to select the least incompatible units.

Methods
Standard serological methods were used for antibody specification and direct antiglobulin test (DAT) (Grifols, CH, BioRad, CH and in-house).

Compatibility testing was performed using indirect antiglobulin test (IAT) at 37°C (gel-card, BioRad, CH) and molecular typing of the patient’s so called rare blood group antigens by PCR-SSP (inno-train, D).

Results
The patient’s phenotype was B, ccDE (R2R2), K- and Fy(a-b+).

Pretransfusion testing revealed anti-Ce and anti-Fya reactive in IAT and anti-e only reactive with papain-treated test cells.

In absence of compatible products we decided not to consider the anti-e and selected O ccDee (R2r), K-, Fy- RBC units for compatibility testing.

All of the incompatible units (n=12) showed negative cross matches. Finally, 7 of these incompatible products were transfused during the night.

A few days after incompatible transfusion the patient’s serum showed a positive XM with a supposedly compatible red blood cell unit (R2R2, K-, Fy-).

Subsequent analyses revealed an anti-Ytb (Cartwrightb) and patients genotyping confirmed Ytb negativity. Consistently, the cross match positive red blood cell product as well as at least one of the cross match negative units transfused in emergency were determined Ytb positive.

The patient’s DAT, autocontrol and eluate remained negative during the entire follow up and no clinical or laboratory signs of major intra- or extravascular hemolysis was observed.

Conclusion
The fact that the anti-e was only enzyme-reactive was crucial for our decision to neglect this ab; thereby considering the other two antibodies (anti-Ce and anti-Fya) as well as being able to issue units with negative cross matches.

After the incompatible transfusion, follow-up showed no signs of hemolysis. However, a newly formed or boosted low-prevalence antibody, anti-Ytb, was identified shortly thereafter, when a fresh patient sample showed positive cross match with a previously cross match negative red blood cell product.