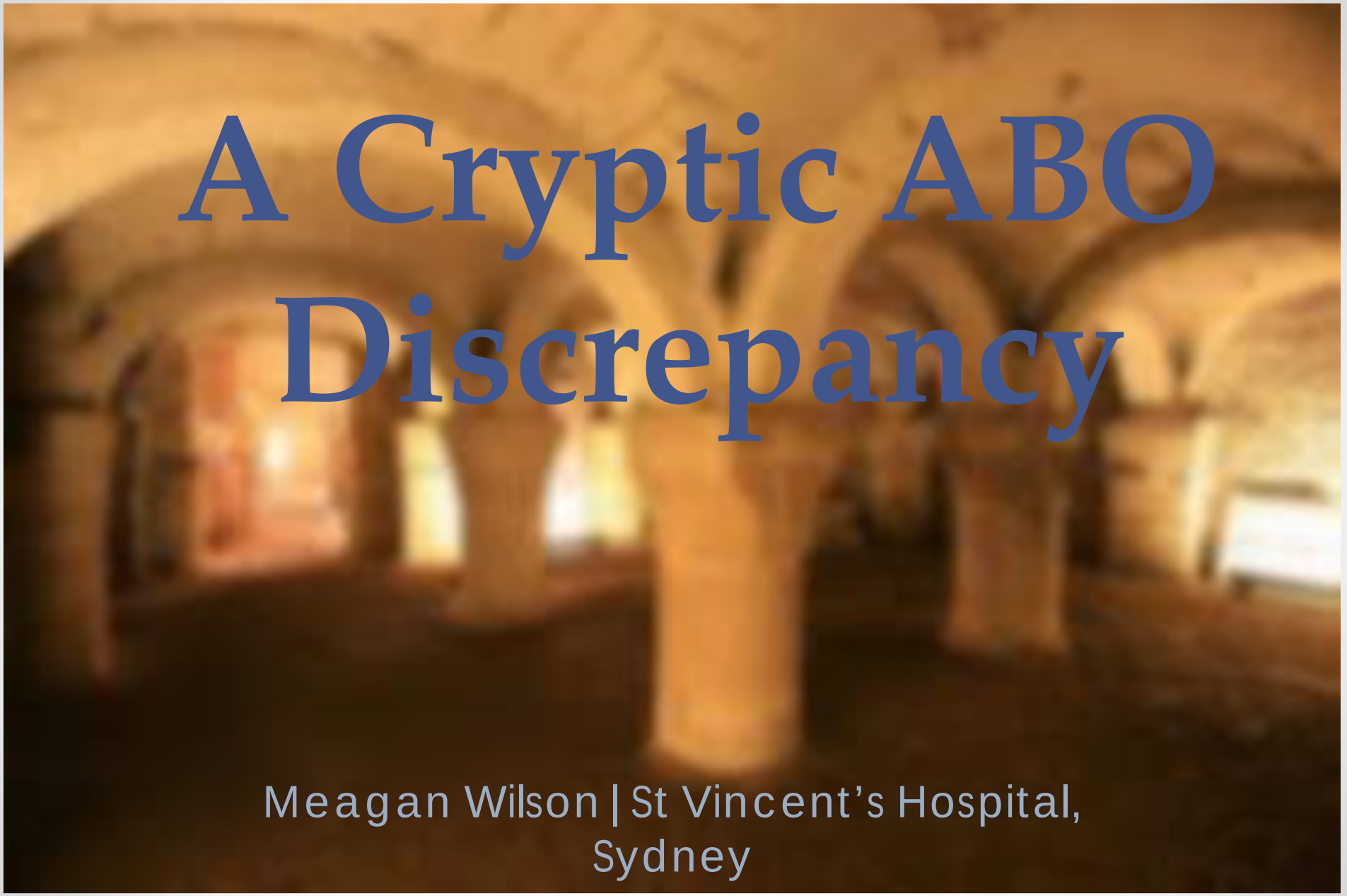

A Cryptic ABO Discrepancy

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Two methodologies – two different results

- 51 year old female for investigation of MDS
- History of ALL treated with auto PBSC 20 years ago.
- The following results were obtained:

	Forward Group			Reverse Group				Interp
	Anti-A	**Anti-B**	**Anti-D**	**A1 cells**	**A2 cells**	**B cells**	**O cells**	
Biovue	0	4	0	4	-	0	-	**B Neg**
Tube	4 MF	4	0	3	3	0	0	**??**

- Reverse group consistent with B
- Forward group Bneg or ABneg??

Two methodologies – two different results

- Potential causes of discrepancy:
  - **A?B subtype with Anti-A1?**
    - A1 lectin pos?? – does not explain neg reaction with anti-A in Biovue
  - **Review patient history - ? Allogeneic group mismatch transplant**
    - Confirmed auto PBSC
  - **Recent transfusion** –
    - Performed blood group using cells from top and bottom of the cell pellet - identical results - only one cell population
    - Patient denied any recent hospital presentations

The answer

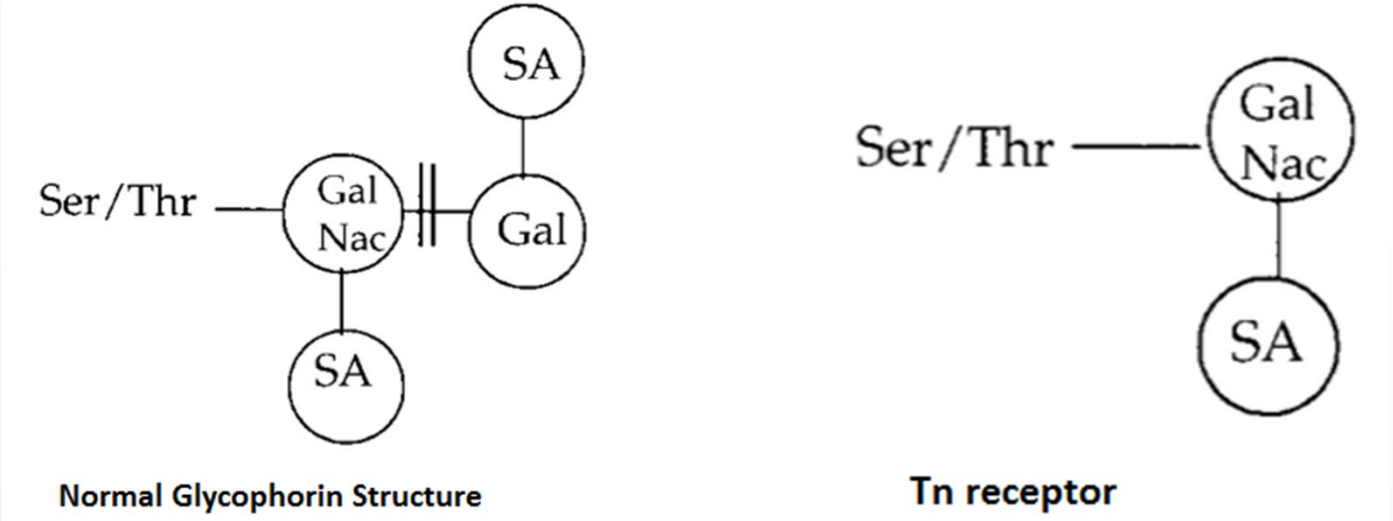
- A review of package inserts revealed different clones used in two monoclonal Anti-A reagents.

Reagent	Anti-A clone	Tn Polyagglutination
Ortho BioVue	MHO4 and 3D3	Does not react with Tn polyaggltinable cells
Epiclone (anti-A and anti A1)	4E7 and 8F2	May react with strong examples of Tn activated cells

- Confirmed by ARBCS reference laboratory to be Tn activation

Tn Activation

- Mutation in a stem cell clone results in some cells (including RBCs) to have altered expression of carbohydrate residues. Exposure of previously concealed Tn antigen ("cryptantigen")



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- Meagan Wilson

Lab findings

- Pre-formed anti-Tn found in all adult sera.
- Some monoclonal antisera share epitopes with A glycophorin and Tn resulting in false positive reactions in vitro in Tn activated cells.
- Mixed population of Tn activated RBCs and normal RBC results in typical mixed field reactions whereby only activated cells agglutinate

Lab findings

- Reactivity with different plant lectins permits differentiation of T activation.

Lectin / reagent	T	Th	Tk	Tx	Tn
*Arachis hypogaea**	+	+	+	+	–
*Glycine soja**	+	–	–	–	+
Vicia cretica	+	+	–	–	–
Medicago disciformis	+	+	–	–	–
*Salvia sclarea**	–	–	–	–	+
*Salvia horminum**	–	–	–	–	+
Bandeiraea simplicifolia II	–	–	+	–	–
Vicia hyrcanica	+	+	+		–
Cord Serum	-	-	-	-	-
Polybrene	-		+	-	-
Papain & A hypogaea	+	-	++		-

* lectin is a component of the Gamma Lectin System (Gamma Biologicals Inc.)
+ denotes agglutination occurs
++ denotes increased agglutination compared with untreated cells

Significance of Tn Activation

- Tn activation, when found, is often associated with MDS and acute leukaemia in adults. *In vitro* effects only observed and no special transfusion requirements are necessary.

- All plasma products contain preformed anti-T antibodies. In adults, exposure to similar environmental epitopes means that immune tolerance to T antigen occurs. *In vivo* antigen/ antibody reactions not clinically significant in these individuals.

- Other forms of T activation (eg. $T_{classical}$, Th, Tk, Tx) have been associated with varying degrees of intravascular haemolysis and are particularly significant in infants as often have a bacterial cause and ubiquitous T antibodies are not yet formed.

Concluding remarks

- Tn activation presents a unique ABO discrepancy in the lab. The advent of monoclonal reagents means that this is a rarely encountered observation.
- Benefits of using multiple reagents for performing ABO typing.
- Value of reading the package insert.
- Tn activation is the most benign form of T activation. Significant challenges for transfusion are presented in other forms of T activation such as $T_{classical}$ as this is often associated with a bacterial cause and, when found is often found in young infants.

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