

Teclistamab Causes Positive Flow Crossmatches

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Background Highly sensitized patients have a low likelihood of receiving a compatible donor offer. Various antibody therapies have been used to reduce antibody levels to increase the chances of receiving a donor offer. However, these therapeutic antibodies may interfere with histocompatibility tests. Recently, our center began desensitizing transplant candidates using teclistamab, a bispecific antibody that binds both B-cell maturation antigen (BCMA) and CD3. It recruits and activates T cells to eliminate BCMA-expressing cells, such as plasma cells and plasmablasts (Fig 1). Here, we investigated whether teclistamab treatment causes positive complement-dependent cytotoxicity (CDC) and flow crossmatches.

Methods One heart transplant candidate, previously desensitized with daratumumab, received five doses of teclistamab. Auto flow and CDC crossmatches with patient cells were performed using sera collected pre- and post-treatment.

Results Treatment with teclistamab slightly reduced the mean fluorescence intensity (MFI) of HLA antibodies (Fig 2). Pronase-treated auto flow crossmatches were negative prior to teclistamab treatment. However, the auto T-cell flow crossmatch became strongly positive after teclistamab treatment, with a median channel shift (MCS) of 324. This MCS could not be reduced by pronase treatment. Auto B-cell flow crossmatches were unaffected by teclistamab treatment (Table 1).

Additionally, auto CDC crossmatches remained negative both pre- and post-teclistamab treatment.

Conclusion Teclistamab can cause positive T-cell flow crossmatches but does not result in positive CDC crossmatches. The interpretation of positive crossmatches in patients treated with teclistamab should account for the potential contribution of the drug.

Figure 1. Bi-specific antibody teclistamab forms a bridge between plasma cells and T cells

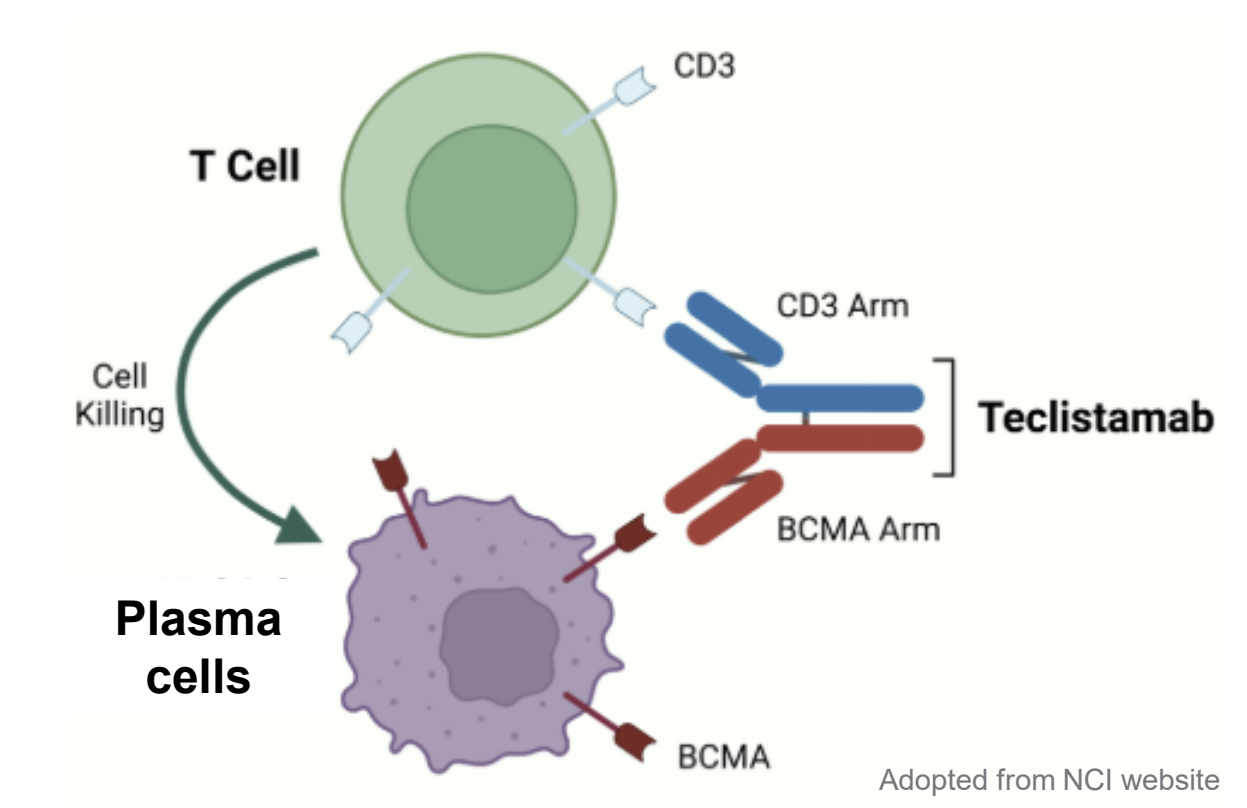


Figure 2. Bi-specific antibody teclistamab had limited impact on levels of HLA antibodies

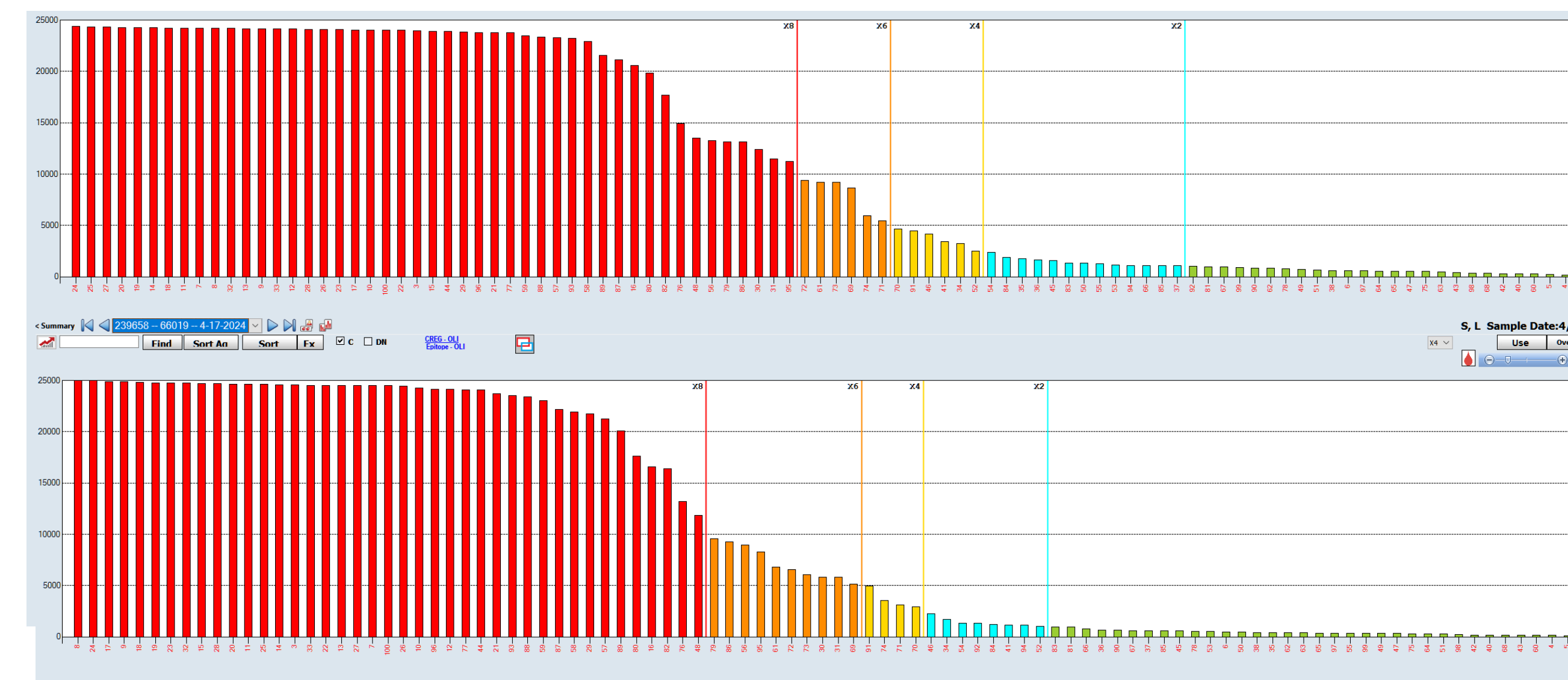


Table 1. Teclistamab caused positive T cell flow crossmatches

	T cell flow	B cell xm	Pronase T cell	Pronase B cell
pre-teclistamab	123	128	0	0
post-teclistamab	324	119	309	0