**LIST OF SUPPLEMENTAL ITEMS (Online Only)**

**Supplemental Table**. Grade 3-5 adverse events possibly, probably or definitely attributed to imatinib or rituximab

**Supplemental Figure 1.** Vienna Skin Score (VSS) ([20](#_ENREF_20))

**Supplemental Figure 2**. Photograph Range of Motion Scale – Modified from ([21](#_ENREF_21))

**Supplemental Figure 3.** Total numbers of B cells (CD19+ CD3- lymphocytes) was calculated in patients analyzed in Figure 3 who had available absolute lymphocyte counts.

**Supplemental Figure 4.** BAFF levels at enrollment across treatment groups.Plasma soluble BAFF levels were determined in patients who later either experienced treatment success or did not respond to imatinib or rituximab.