

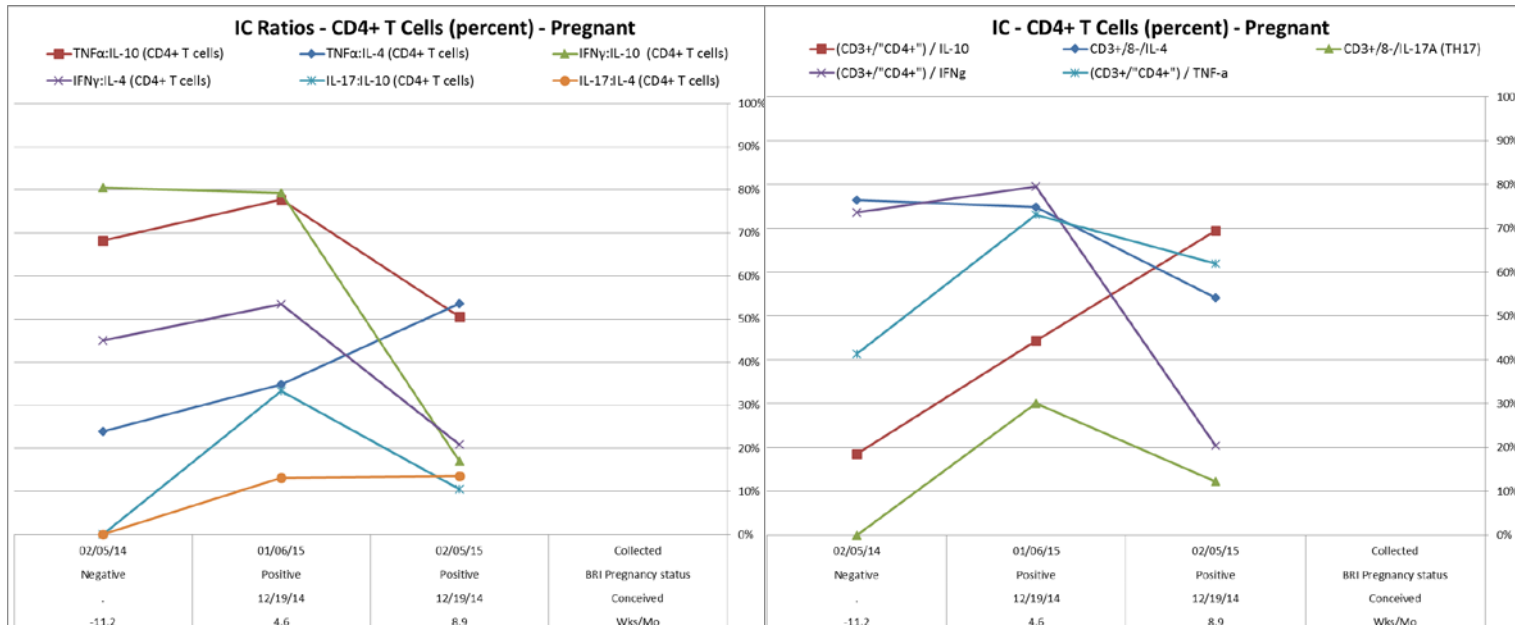
Pregnant Patient Report

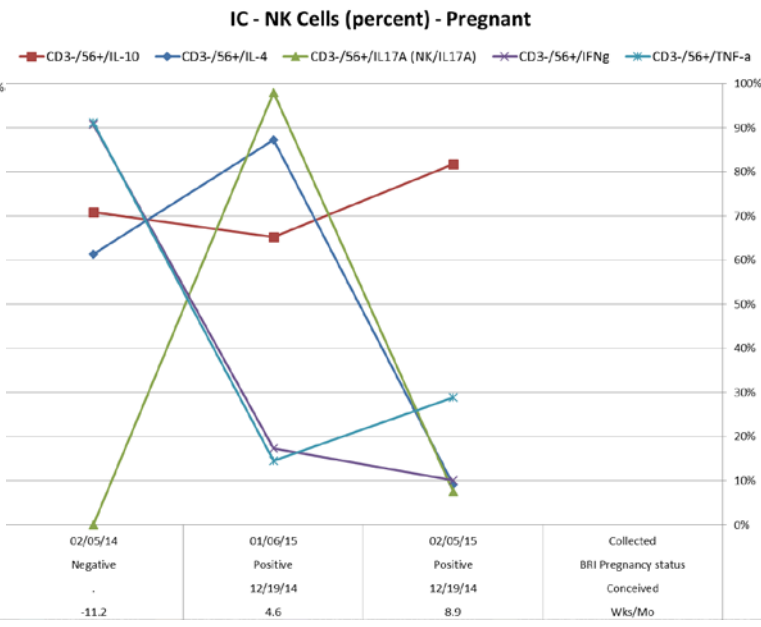
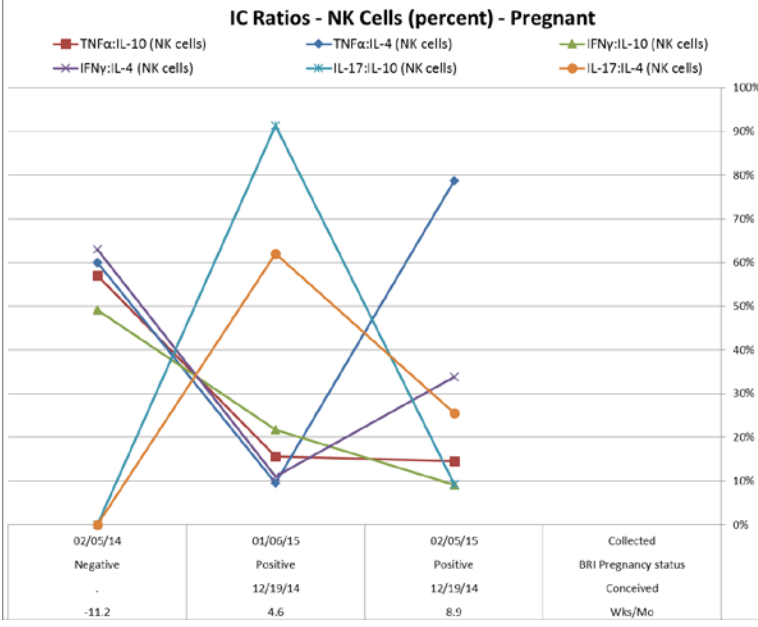
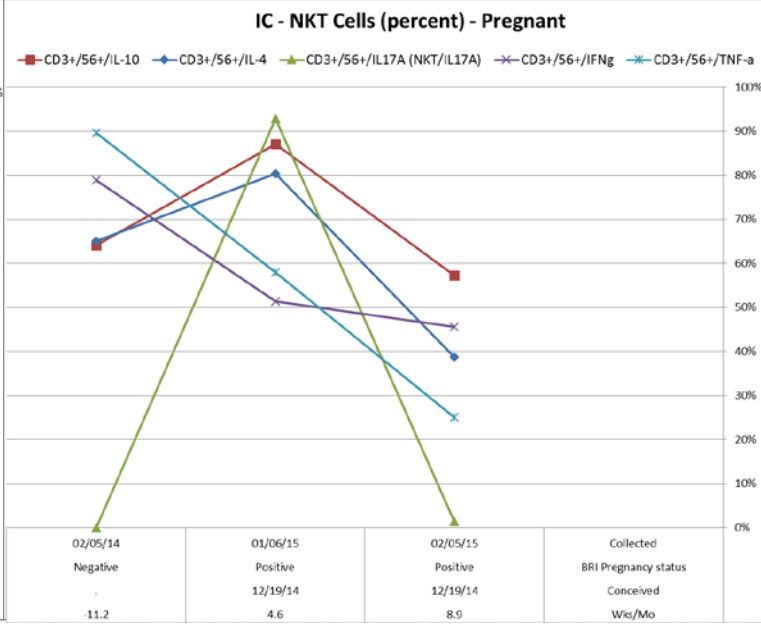
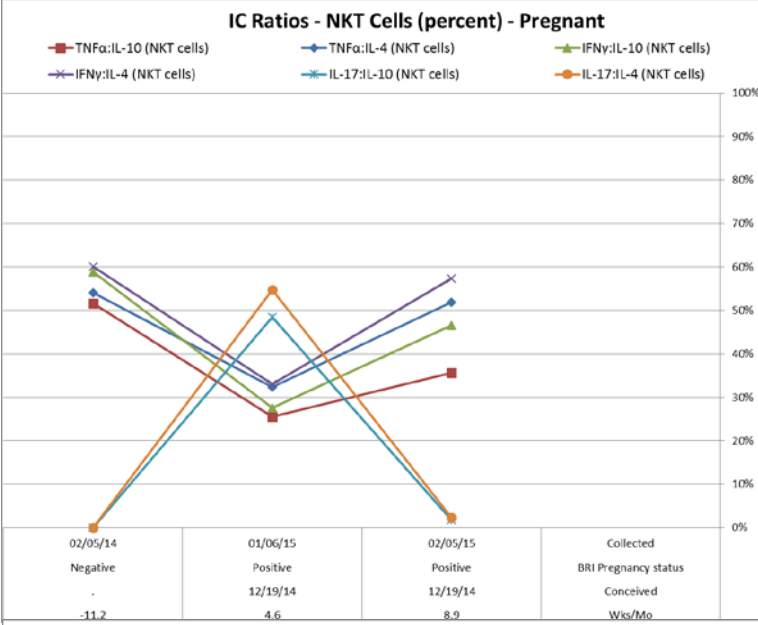
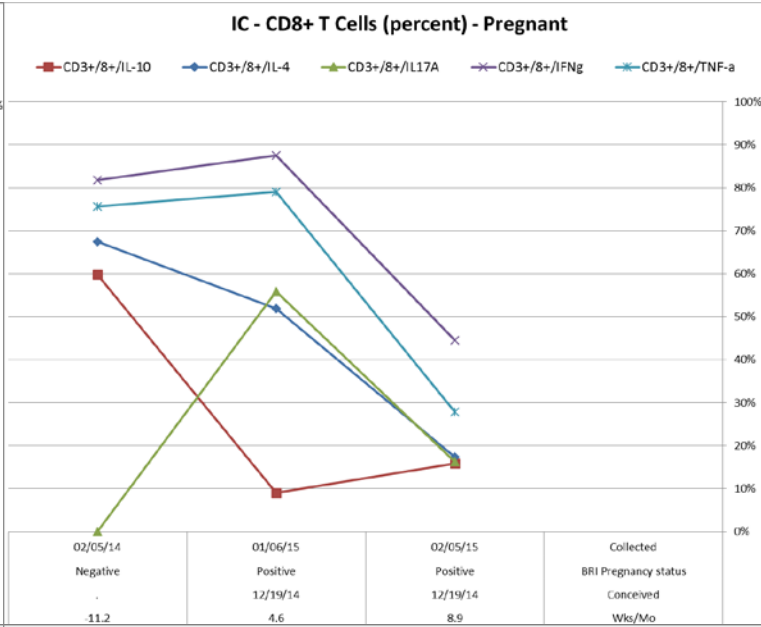
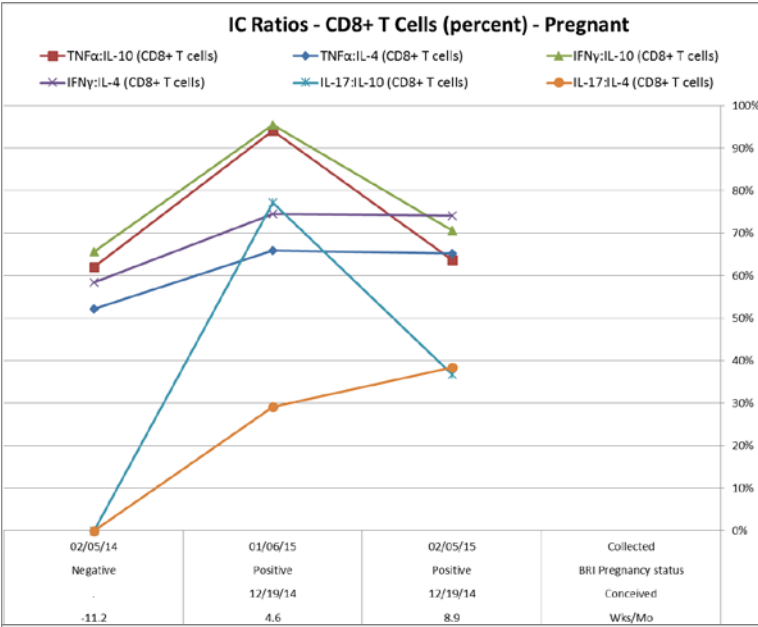
- Report date is 2-19-15 (~10.5 weeks pregnant)
- 2-5-15 (~8.5 weeks pregnant)
- 1-6-15 (~4.5 weeks pregnant)
- 2-7-14 (not pregnant)

Treatments

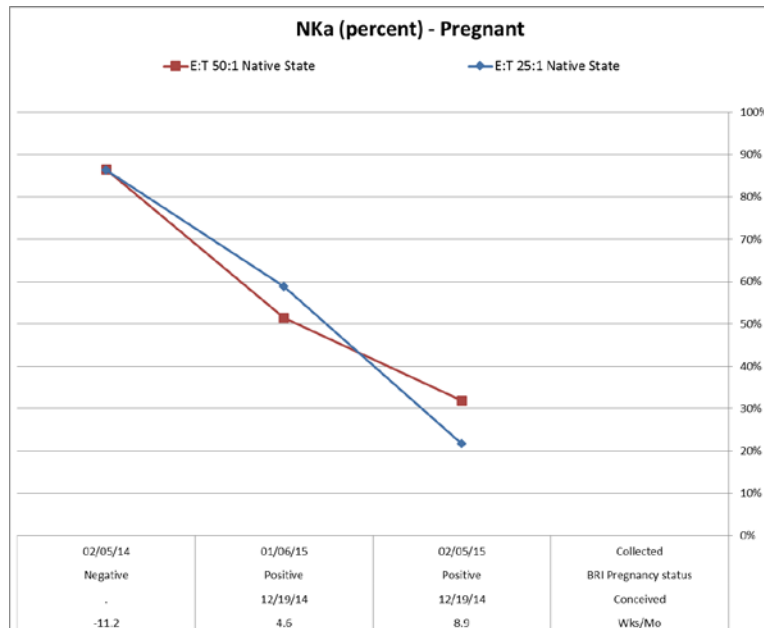
- Neupogen
 - 1 mcg/kg/day
- Prednisone
 - 10 mg BID - increased to 20 mg BID around 1-19-15
- Intralipid
 - Every 2 weeks
- Lovenox
 - 40 mg QD

Summary of 2-5-15 Data

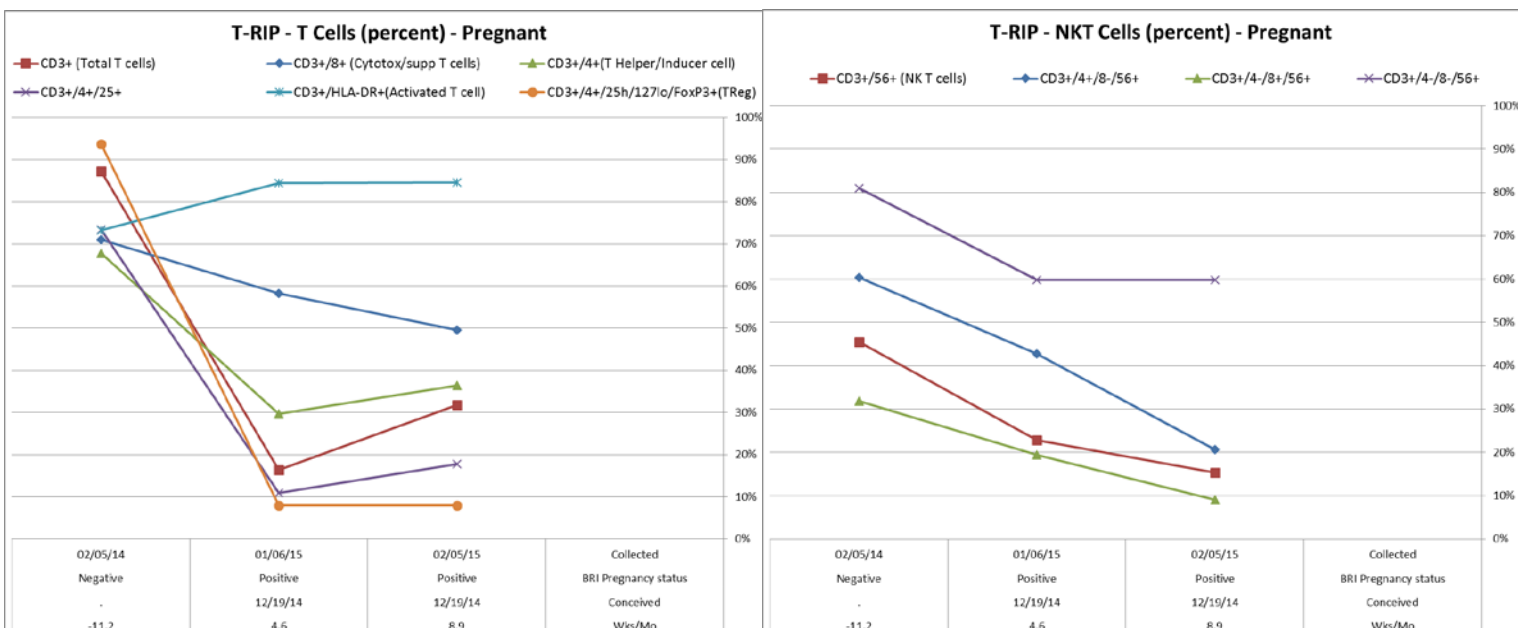


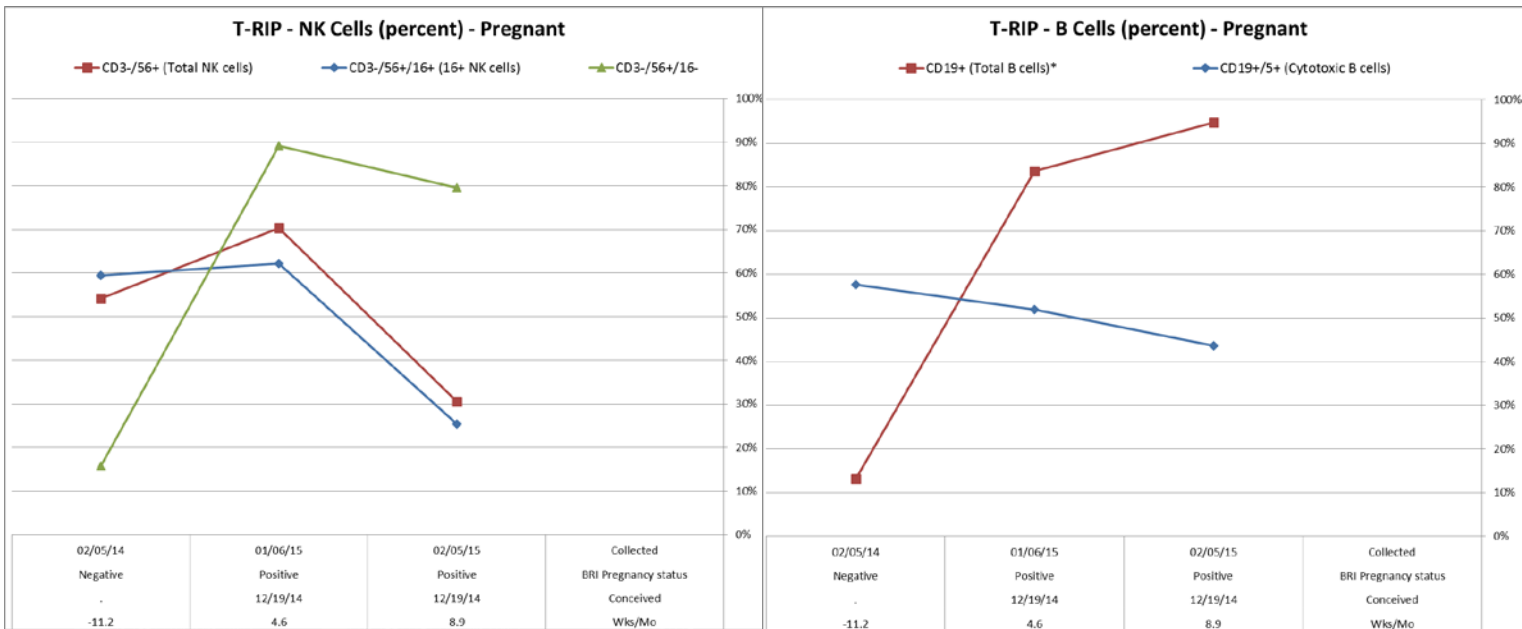


- Compared with results of testing performed on blood from 1-6-15, levels of TNF α positive and IFN γ positive cells decreased for all tested cell types (CD4+ T cells, CD8+ T cells, NKT cells, NK cells) except for TNF α positive NK cells which increased but remained borderline low. IL-4 positive cells also decreased for all tested cell types. These changes to levels of individual intracellular cytokine (IC) positive cells resulted in a Th2 shift from Th1/Th2 neutrality to Th2 dominance. Together with the Th2 shift, there was a decrease in all CD4+ T cell and CD8+ T cell TNF α and IFN γ IC ratios except for the CD4+ T cell TNF α :IL-4 ratio which increased slightly but remained within normal levels. All NKT cell IC ratios increased but remained within normal ranges, and your NK cell TNF α :IL-4 ratio increased to moderately elevated levels.

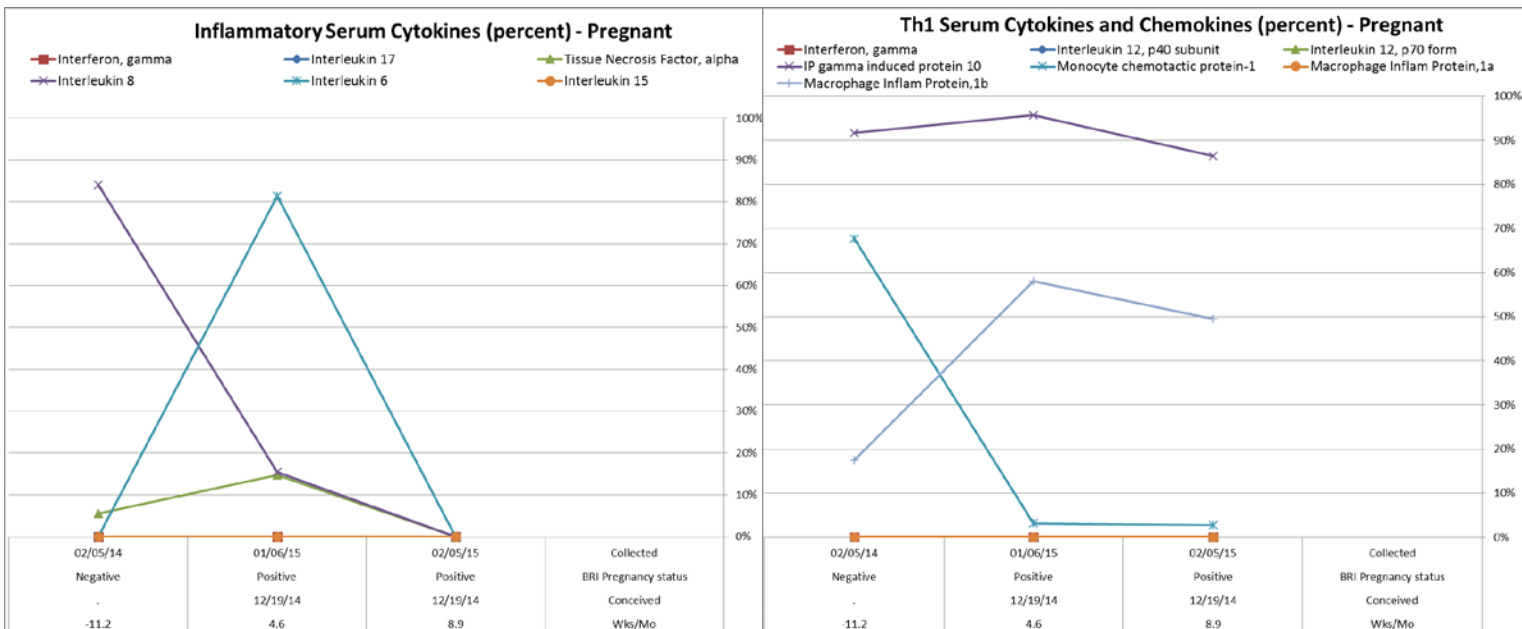


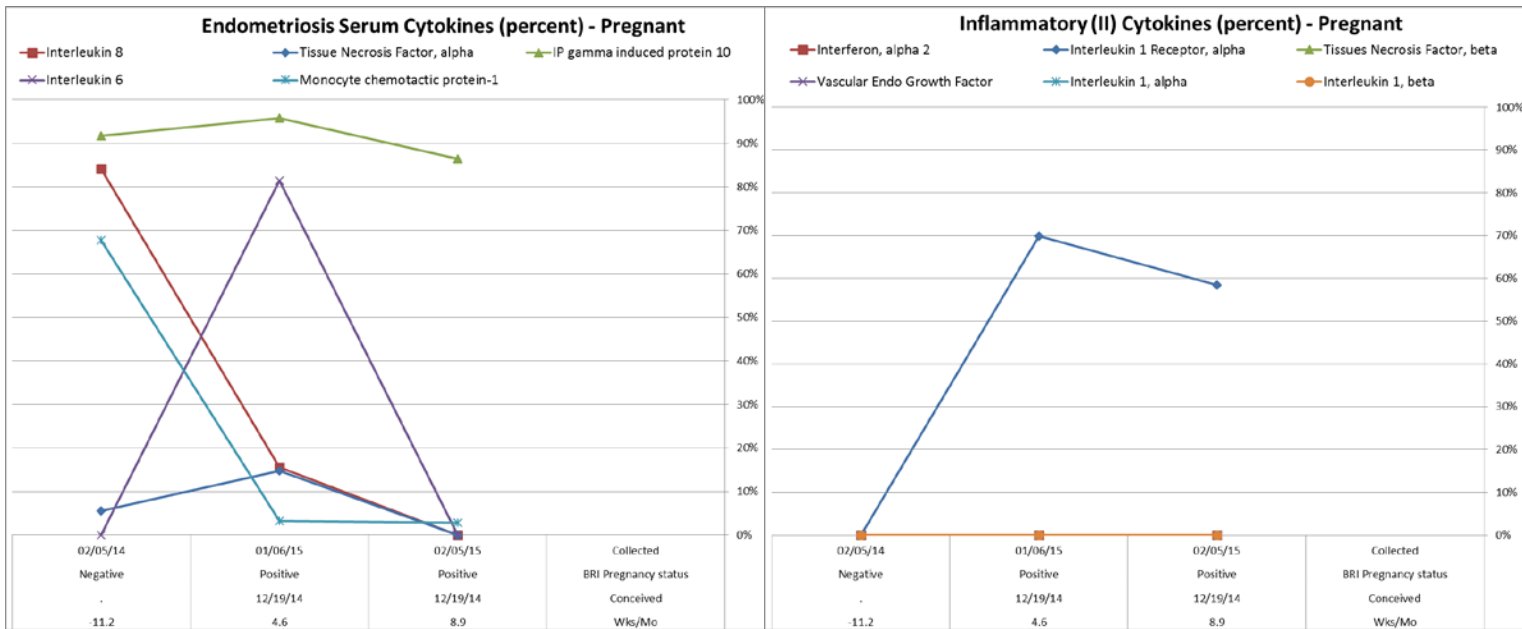
- Your NK cell cytotoxic activity (NKa) decreased from normal to low levels.





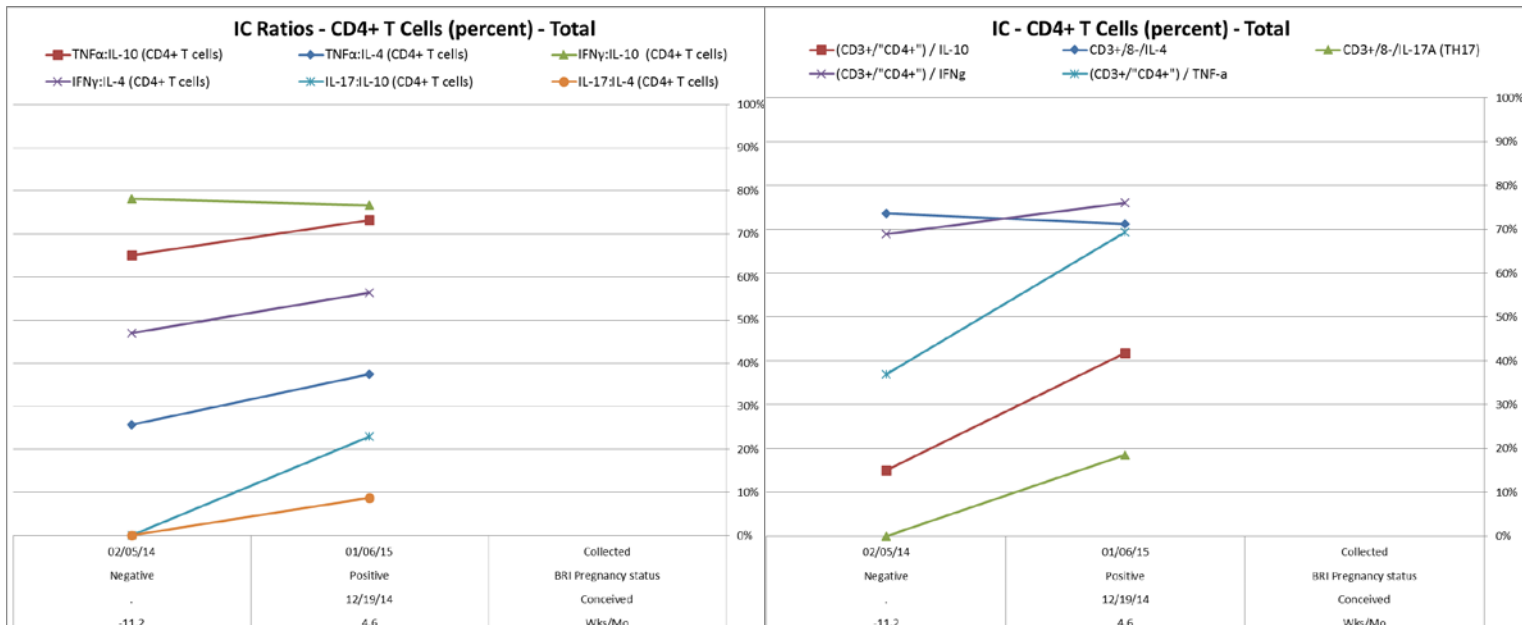
- Your total white blood cells (WBCs) remained unchanged (25.2 to 23.6) and your Treg cells accordingly remained unchanged and low, indicative of retention of these cells within the decidua. Your total and CD16+ NK cells decreased from borderline elevated to borderline low levels, and your total, CD4+, and CD8+ NKT cells all decreased and are low. Your total B cells increased to more highly elevated levels, however your CD5+ B cells decreased slightly and remained within normal ranges.





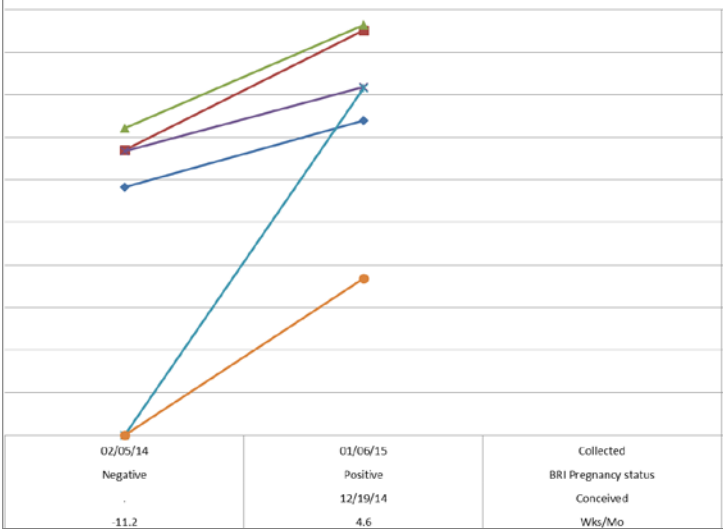
- Serum levels of several cytokines and chemokines decreased, including TNF α (-30%), IL-6 (-35%), IL-8 (-18%), IP-10 (-42%), MCP-1 (-7%), and MIP-1 β (-14%). IL-6 decreased from elevated to low levels, while IP-10 remained elevated.
- Your dose of prednisone was increased from 10 mg BID to 20 mg BID following evidence of activation of adaptive immunity with your previous report. Your current data from your 2-5-15 sample shows significant efficacy of your amended treatment protocol in reducing activation of your immune system at the cellular level and decreasing systemic levels of inflammation. This is evidenced by a decrease in levels of almost all TNF α positive and IFN γ positive cells for all tested cell types; a decrease in NKa; a decrease in levels of total and CD16+ NK cells, total, CD4+, and CD8+ NKT cells, and CD5+ B cells; and a decrease in serum levels of TNF α , IL-6, IL-8, IP-10, MCP-1, and MIP-1 β . Continued monitoring of your immune system is warranted.

Summary of 1-6-15 Data



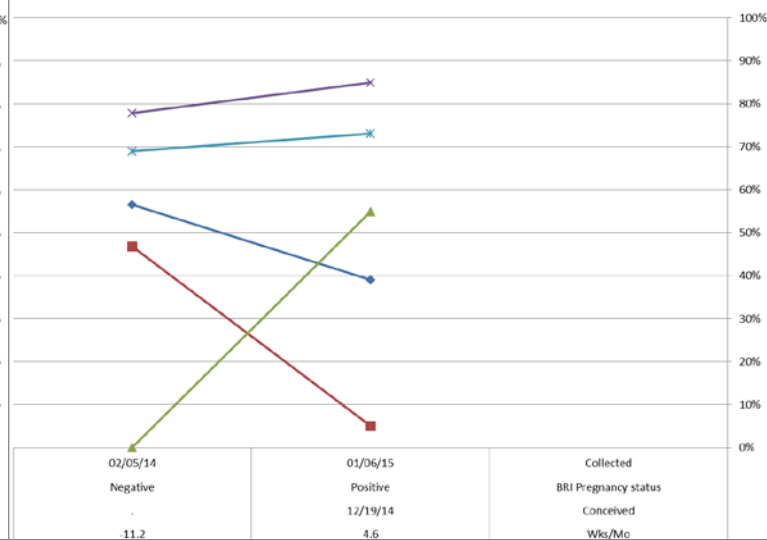
IC Ratios - CD8+ T Cells (percent) - Total

■ TNFα:IL-10 (CD8+ T cells) ◆ TNFα:IL-4 (CD8+ T cells) ▲ IFNγ:IL-10 (CD8+ T cells)
✕ IFNγ:IL-4 (CD8+ T cells) ✕ IL-17:IL-10 (CD8+ T cells) ● IL-17:IL-4 (CD8+ T cells)



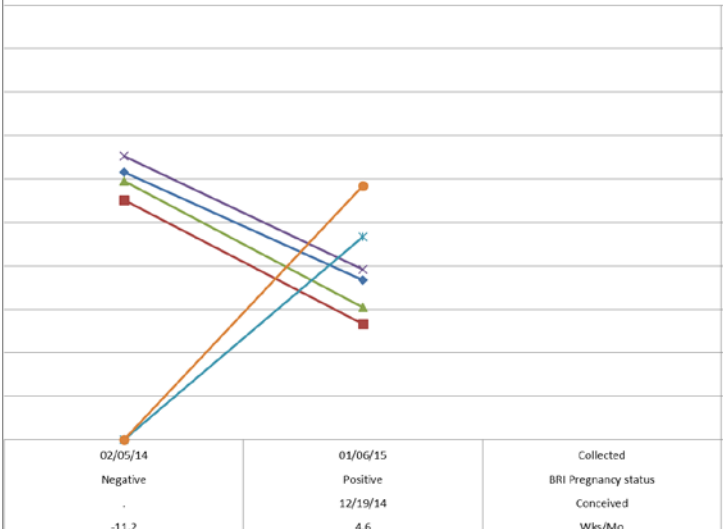
IC - CD8+ T Cells (percent) - Total

■ CD3+/8+/IL-10 ◆ CD3+/8+/IL-4 ▲ CD3+/8+/IL17A ✕ CD3+/8+/IFNγ ✕ CD3+/8+/TNF-α



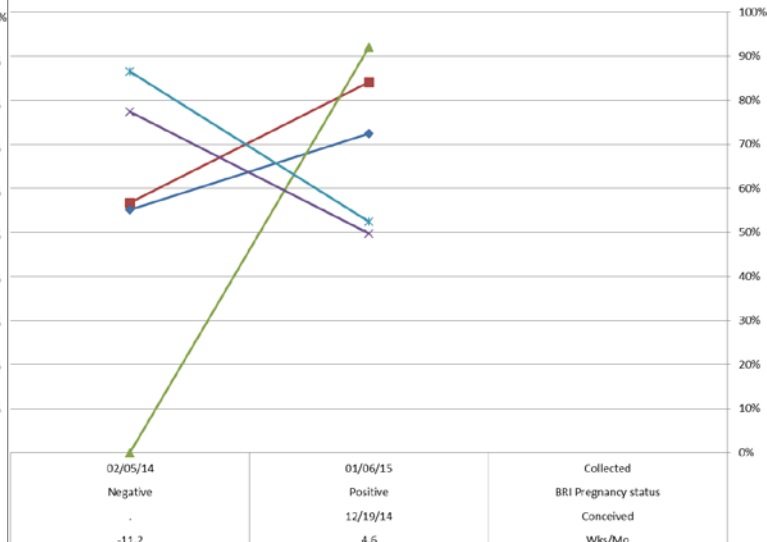
IC Ratios - NKT Cells (percent) - Total

■ TNFα:IL-10 (NKT cells) ◆ TNFα:IL-4 (NKT cells) ▲ IFNγ:IL-10 (NKT cells)
✕ IFNγ:IL-4 (NKT cells) ✕ IL-17:IL-10 (NKT cells) ● IL-17:IL-4 (NKT cells)



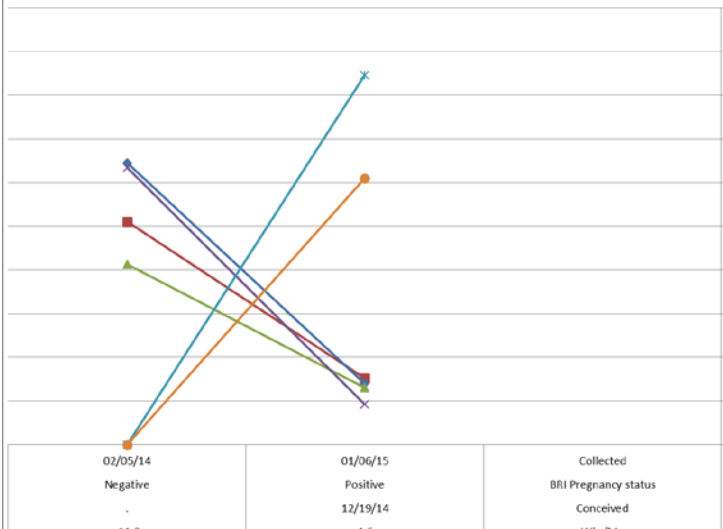
IC - NKT Cells (percent) - Total

■ CD3+/56+/IL-10 ◆ CD3+/56+/IL-4 ▲ CD3+/56+/IL17A (NKT/IL17A) ✕ CD3+/56+/IFNγ ✕ CD3+/56+/TNF-α



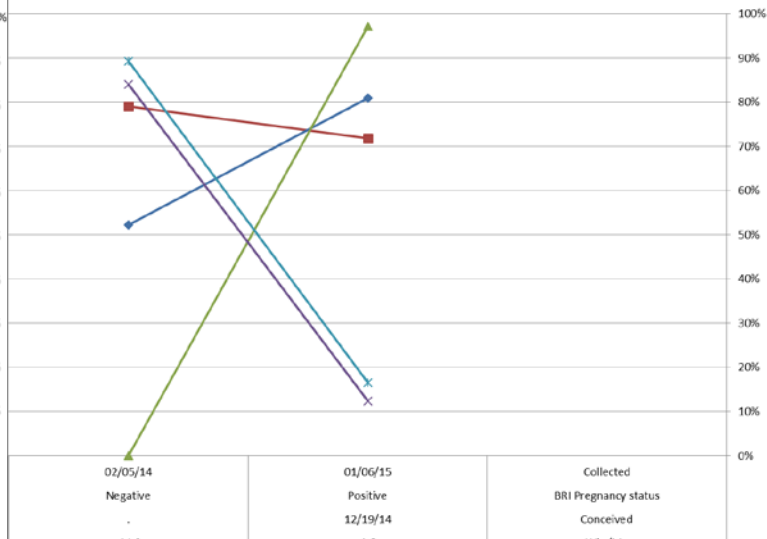
IC Ratios - NK Cells (percent) - Total

■ TNFα:IL-10 (NK cells) ◆ TNFα:IL-4 (NK cells) ▲ IFNγ:IL-10 (NK cells)
✕ IFNγ:IL-4 (NK cells) ✕ IL-17:IL-10 (NK cells) ● IL-17:IL-4 (NK cells)

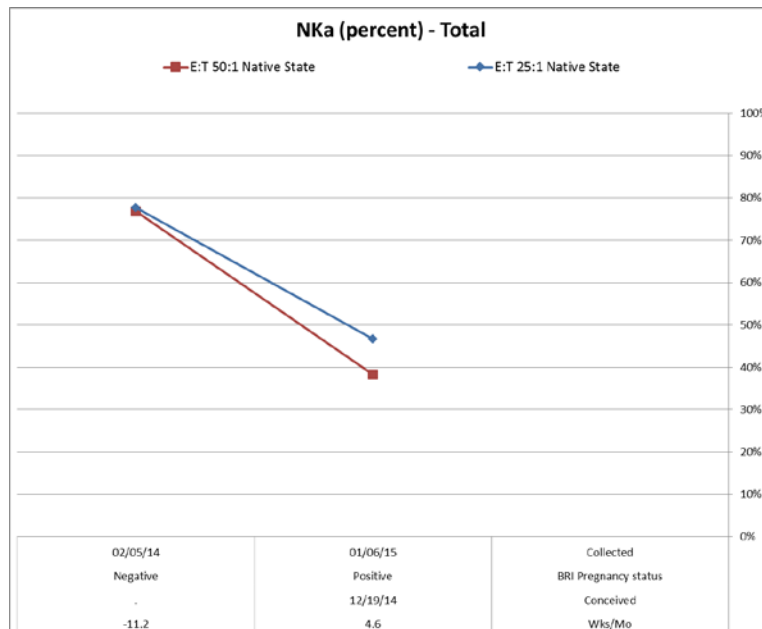


IC - NK Cells (percent) - Total

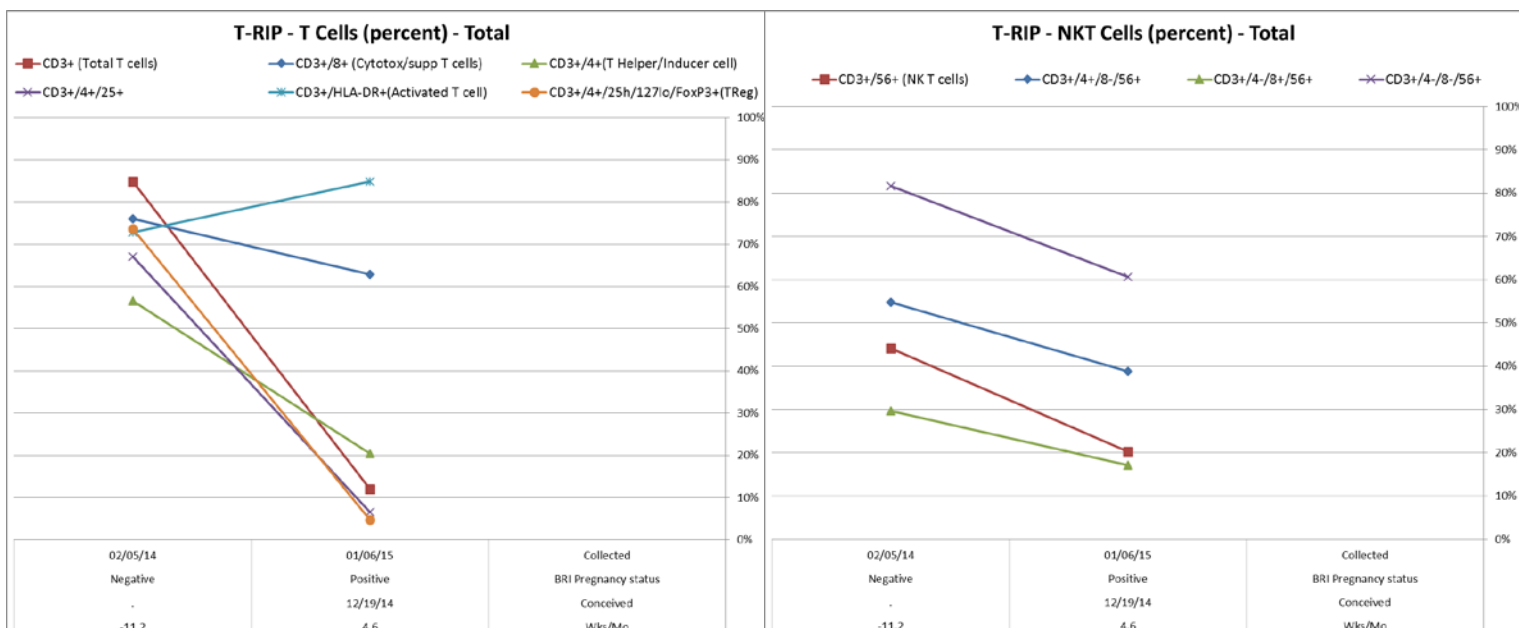
■ CD3+/56+/IL-10 ◆ CD3+/56+/IL-4 ▲ CD3+/56+/IL17A (NK/IL17A) ✕ CD3+/56+/IFNγ ✕ CD3+/56+/TNF-α

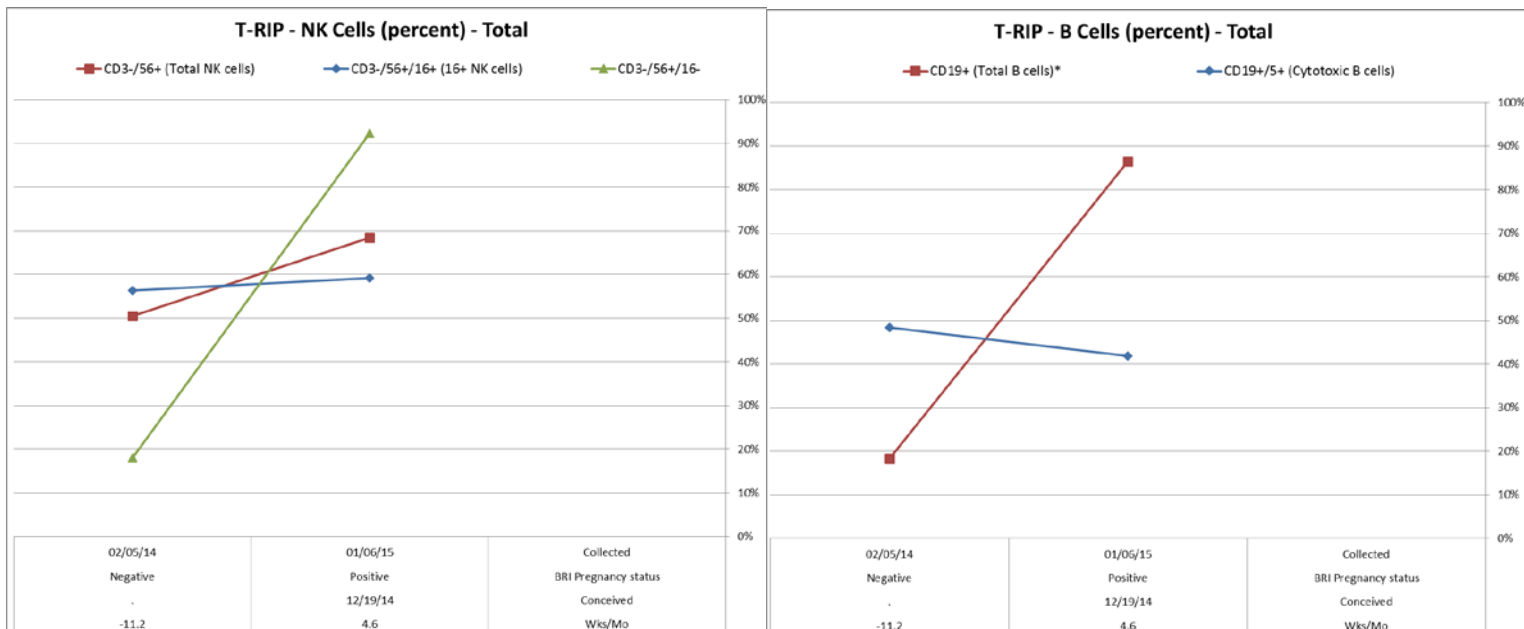


- Compared with results of testing performed on blood from 2-7-14, levels of TNF α positive and IFN γ positive CD4+ and CD8+ T cells increased, while TNF α positive and IFN γ positive NKT and NK cells decreased. IFN γ positive CD4+ and CD8+ T cells are now mildly elevated and TNF α positive CD4+ and CD8+ T cells are now borderline elevated, while TNF α positive and IFN γ positive NKT and NK cells all decreased from elevated to normal or low levels. IL-4 positive CD4+ and CD8+ T cells decreased, while IL-4 positive NKT and NK cells increased. These changes to levels of individual intracellular cytokine (IC) positive cells resulted in a slight Th1 shift (although Th1/Th2 neutrality was maintained) with an increase in all CD8+ T cell TNF α and IFN γ IC ratios and a decrease in all NKT and NK cell TNF α and IFN γ IC ratios. All CD8+ T cell TNF α and IFN γ IC ratios are now elevated.

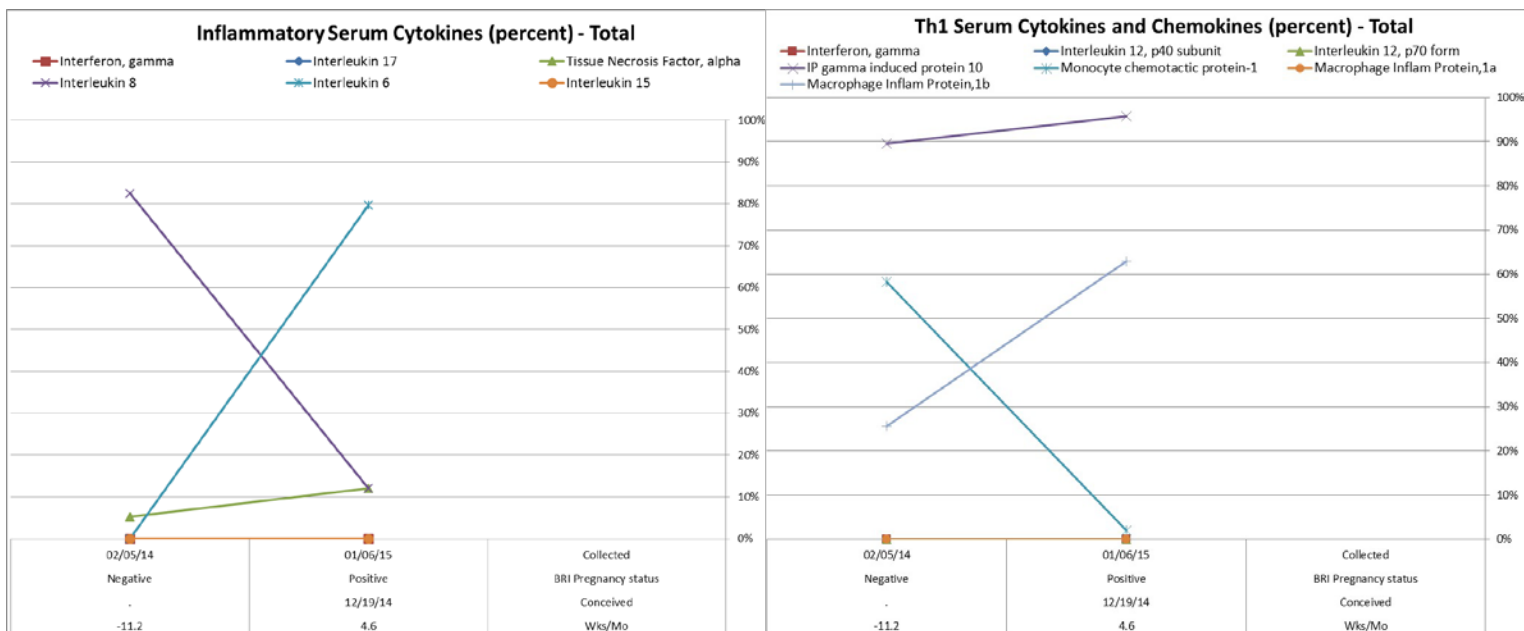


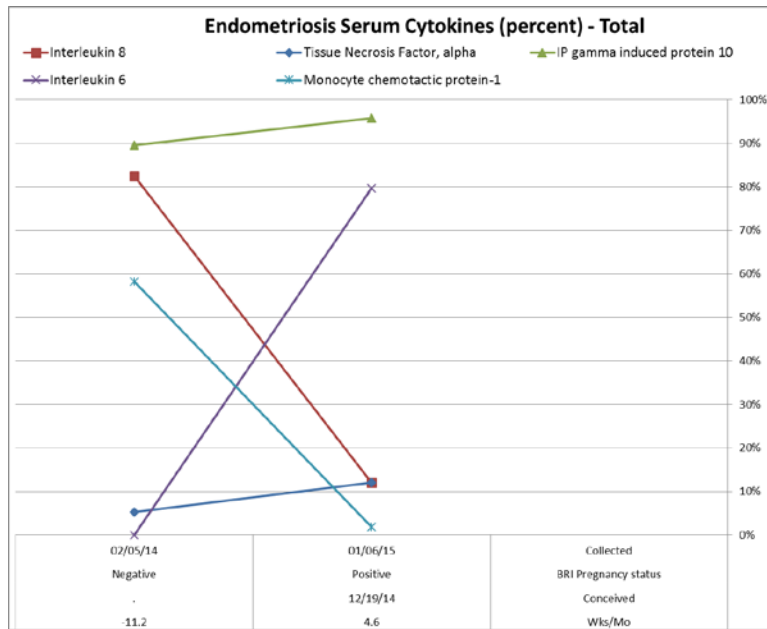
- Your NK cell cytotoxic activity (NKa) decreased from elevated to normal levels.





- Your total white blood cells (WBCs) increased from 5.1 to 25.2 consistent with the use of Neupogen, and your Treg cells decreased accordingly from borderline elevated to low levels, indicative of increased recruitment of these cells to the decidua. Your total and CD16+ NK cells increased slightly although they remained within normal ranges. Your total B cells increased from low to elevated levels, while your CD5+ B cells decreased slightly and remained within the normal range. Your HLA-DR+ T cells also increased from borderline elevated to mildly elevated levels. Consistent with the decreased in NKT cell IC ratios, levels of total, CD4+, CD8+, and CD4-CD8- NKT cells all decreased, with CD4-CD8- NKT cells decreasing from elevated to normal levels.





- Serum levels of several cytokines and chemokines increased, including TNF α (+31%), IL-6 (+53%), IP-10 (+39%), MIP-1 β (+99%), and IL-1R α (+188%). This included an increase in IL-6 levels from low to elevated, and an increase in IP-10 levels from elevated to highly elevated. IL-8 (-93%) decreased on the other hand, from an elevated to a low level.
- You remain negative for all tested ANAs, APAs, and ATAs.
- Your 1-6-15 data show significant efficacy of your treatment protocol in reducing activation of innate immunity, evidenced by a decrease in levels of TNF α positive and IFN γ positive NKT and NK cells; a decrease in all NKT and NK cell TNF α and IFN γ IC ratios; a decrease in NKA; and a decrease in levels of total, CD4+, CD8+, and CD4-CD8- NKT cells. However, your 1-6-15 data also indicate some evidence for an increase in activation of adaptive immunity and an overall increase in systemic levels of inflammation, evidenced by an increase in levels of TNF α positive and IFN γ positive CD4+ and CD8+ T cells; a slight Th1 shift with an increase in all CD8+ T cell TNF α and IFN γ IC ratios and CD4+ T cell TNF α ratios; an increase in levels of HLA-DR+ T cells; and an increase in serum levels of TNF α , IL-6, IP-10, MIP-1 β , and IL-1R α . These data warrant further attention and continued monitoring of your immune system is warranted.