Abstract:
Characterization of the relationship between auto-antibodies and antigens is needed to better understand their role in disease. It is hypothesized that auto-antibodies respond differently to antigen from native serum as opposed to cell culture derived antigen. In this study, 2 antigens, one derived from sera and the other cell culture, of Alpha Fetoprotein (AFP), Carbohydrate Antigen (CA) 15-3, CA 19-9, CA 125 and Carcinoembryonic Antigen (CEA) donated by BioProcessing Inc. (Scarborough, MA) were screened for auto-antibodies from 48 random serum samples known to have auto-antibodies. 20 nano liter spots of each type of tumor marker, were deposited on the bottom of the well of a 96-well plate. The spots were incubated for 4 hours at 37°C and then blocked with Quansys Blocker. The serum samples were then diluted in the supplied sample buffer at 1:100 and incubated for 30 minutes at 20°C on an orbital shaker. After washing each well with the Wash Solution, Quansys Detection was diluted to 1:1000 and added to the plate. This was incubated for 30 mins at 20°C followed by another wash with the Wash Solution. Quansys Substrate was added to the plate then imaged using the Fluorchem 8900 (Alpha Innotech Inc.) for 2 minutes.

Materials and Methods:
As seen in Table 1.0 the CEA had the tightest correlation between the natural and the cell culture derived antigen with a R² of 0.97 (Figure 3.0). Next the AFP and the CA19-9 show acceptable similarities with a R² of 0.92 and 0.93 respectively (Figures 2.0 and 3.0). Both the CA 15-3 and the CA 125 show poor correlation between the antigens with respective R² of 0.2 and 0.38 (Figures 4.0 and 5.0).

Introduction:
As more and more auto-antibody research is performed, a characterization of the relationship of the auto-antibody and antigen is desired. Many of the antigen sources for auto-antibody testing are coming from cell cultures that can produce large amounts of antigen. It is questioned if antigen derived from cell cultures is compared to antigen derived from native sera. In order to use these sources for antigen production, it is necessary to validate the response to native antigen found in sera.

Results:
As seen in Table 1.0 the CEA had the tightest correlation between the natural and the cell culture derived antigen with a R² of 0.97 (Figure 3.0). Next the AFP and the CA19-9 show acceptable similarities with a R² of 0.92 and 0.93 respectively (Figures 2.0 and 3.0). Both the CA 15-3 and the CA 125 show poor correlation between the antigens with respective R² of 0.2 and 0.38 (Figures 4.0 and 5.0).

Conclusion:
AFP, CEA and CA 19-9 all had acceptable correlations between the different sources of antigen. However, the CA 15-3 and CA 125 showed quite large discrepancies between the correlations. This could potentially be due to varied glycosylation of these antigens.