



Figure 2: Anti-ganglioside antibody binding profile in Peruvian GBS cases

Graphical displays of GBS and Healthy Control (HC) serum IgG anti-ganglioside antibody binding.

- A) Heat maps of antibody intensities against a broad screening panel of 16 single and 120 heteromeric glycolipid complexes. Each horizontal row refers to the IgG binding reactivity of an individual GBS or HC serum sample and each vertical row refers to each of the 136 targets screened. Pearson's hierarchical clustering identifies two dominant patterns (red blocks) of IgG reactivity (GM1:PS and GT1a:GM1) in the GBS cohort (upper map, n=42) which are absent in the HC sera (lower map, n=41). The rainbow bar denotes the intensity scale of IgG binding from low (blue) to high (red) intensity. PS = phosphatidylserine.
- B) ROC curve comparing the sensitivity and specificity of single GM1 and PS (phosphatidylserine) with the GM1:PS heteromeric complex (left image). In addition, the individual patient IgG reactivity values are plotted (right image) for the same 3 antigen targets subjected to ROC analysis. These data demonstrate enhanced binding intensity to the GM1:PS heteromeric complex, compared with the sum of the single glycolipid antigens. ROC = receiver operating characteristic.
- C) ROC curve comparing the sensitivity and specificity of GalNAc-GD1a, GM1, and GalNAc-GD1a+GM1 (left image). In addition, the individual patient IgG reactivity values are plotted (right image) for the same 3 antigen targets subjected to ROC analysis. These data demonstrate enhanced binding intensity to the GalNAc-GD1a+GM1 heteromeric complex, compared with the sum of the single glycolipid antigens. ROC = receiver operating characteristic.

C) ROC curve comparing the sensitivity and specificity of single GalNAc-GD1a and GM1 with the GalNAc-GD1a:GM1 heteromeric complex (left image). In addition, the individual patient IgG reactivity values plotted (right image) for the same 3 antigen targets subjected to ROC analysis. The GalNAc-GD1a:GM1 complex, whilst only representing a minor antigen target in this cohort, can be seen to mildly enhance IgG reactivity in one GBS patient and decrease reactivity in the remainder, in comparison with the major enhancement effects seen for GT1a:GM1 and GM1:PS in the majority of sera. These diverse and distinct patterns underlie the value of using a broad approach to heteromeric complex screening.