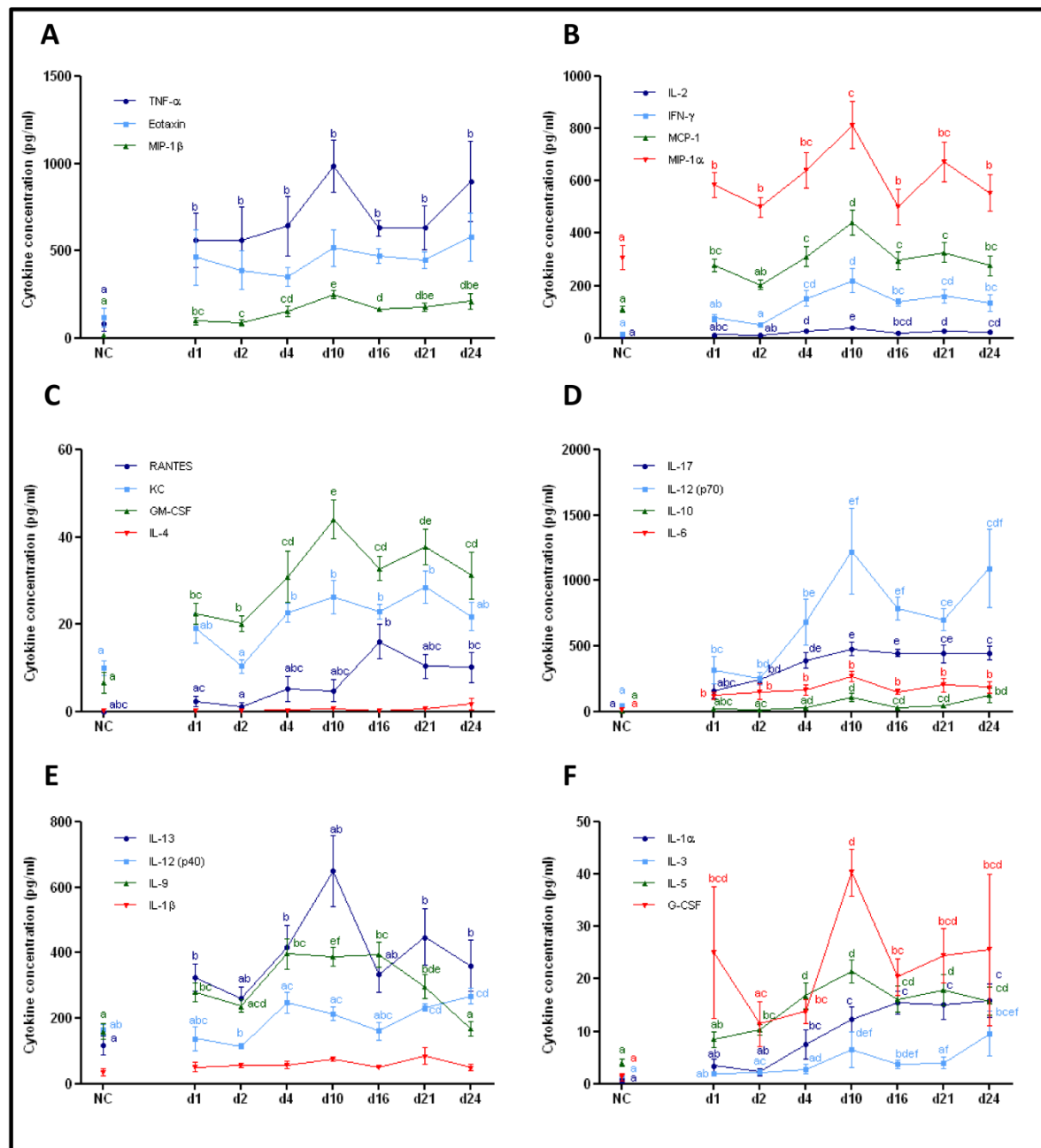


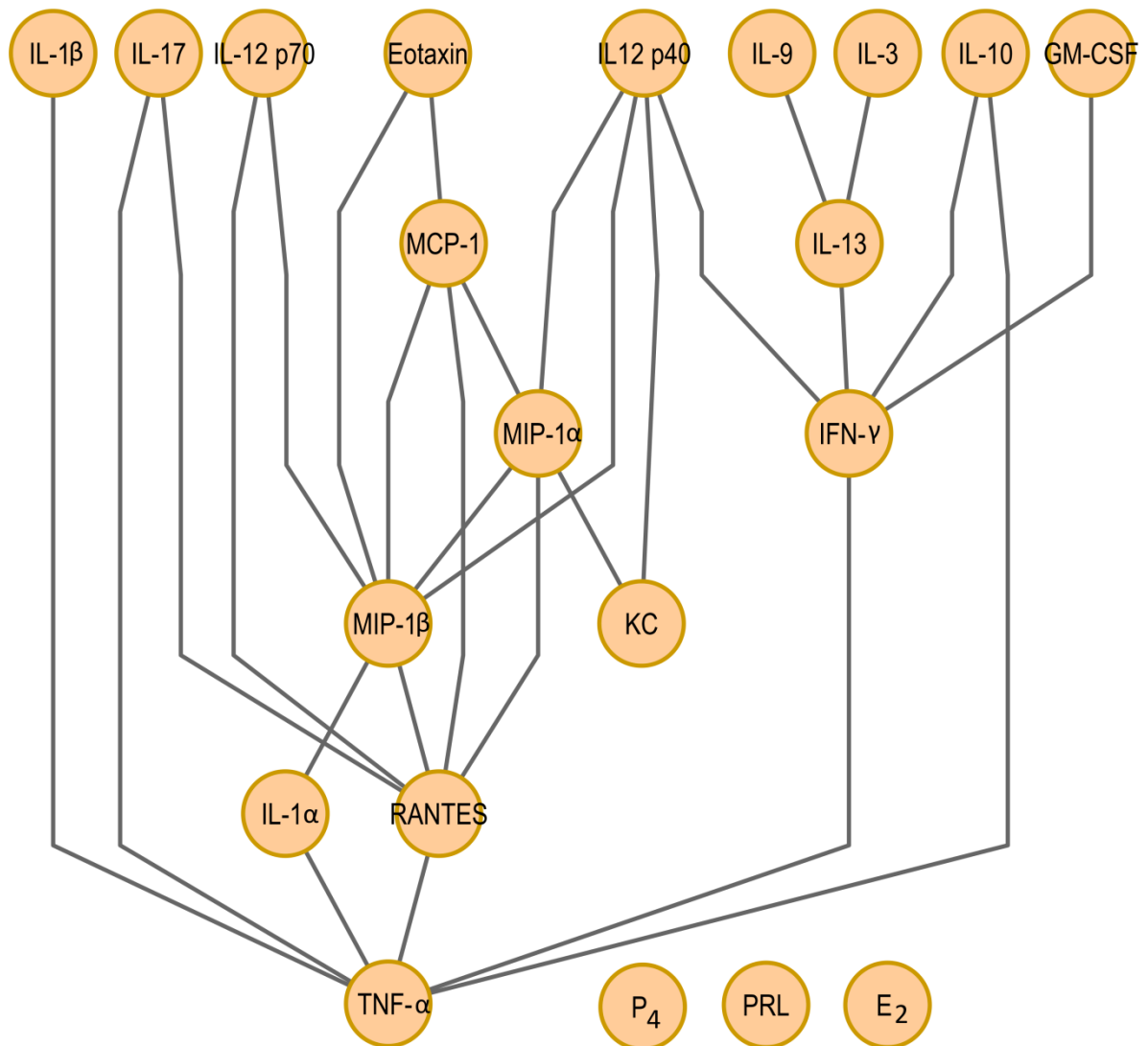
# Bayesian modeling suggests that IL-12 (p40), IL-13 and MCP-1 drive murine cytokine networks *in vivo*

Sarah L. Field<sup>1,\*</sup>, Tathagata Dasgupta<sup>2,\*</sup>, Michele Cummings<sup>1</sup>, Richard S. Savage<sup>3</sup>, Julius Adebayo<sup>2,4</sup>, Hema McSara<sup>1</sup>, Jeremy Gunawardena<sup>2</sup>, Nicolas M. Orsi<sup>1,\*\*</sup>

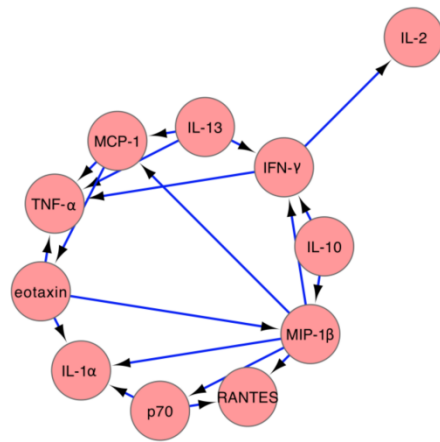
Additional file 1



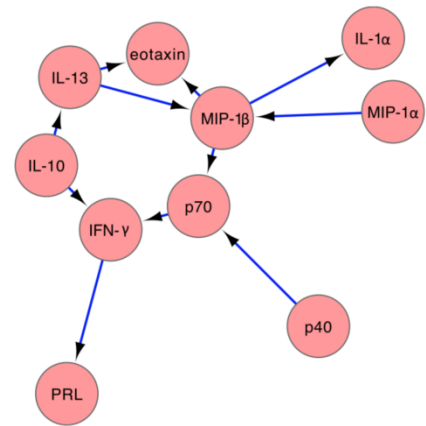
Additional file 2



Additional file 3

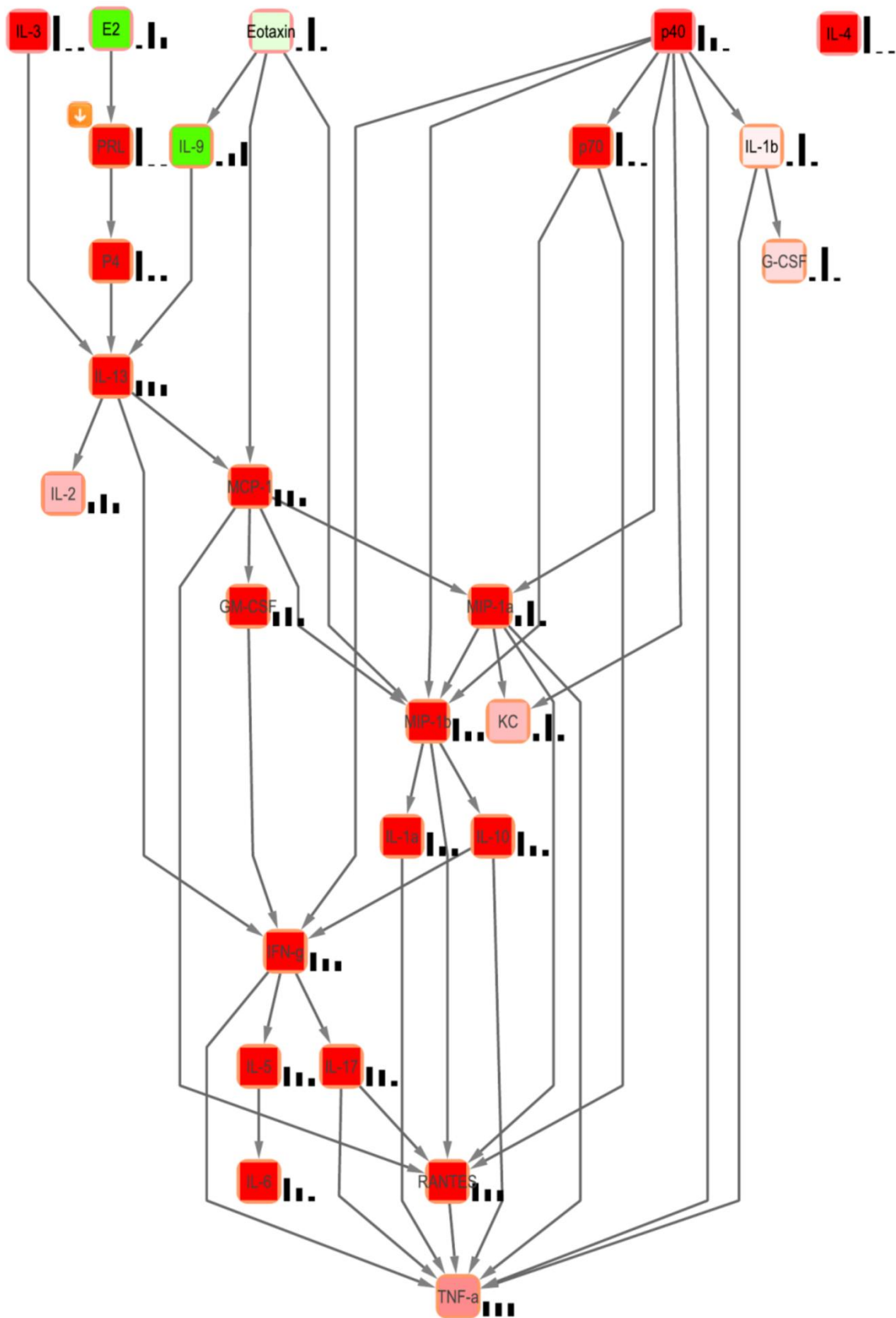


A

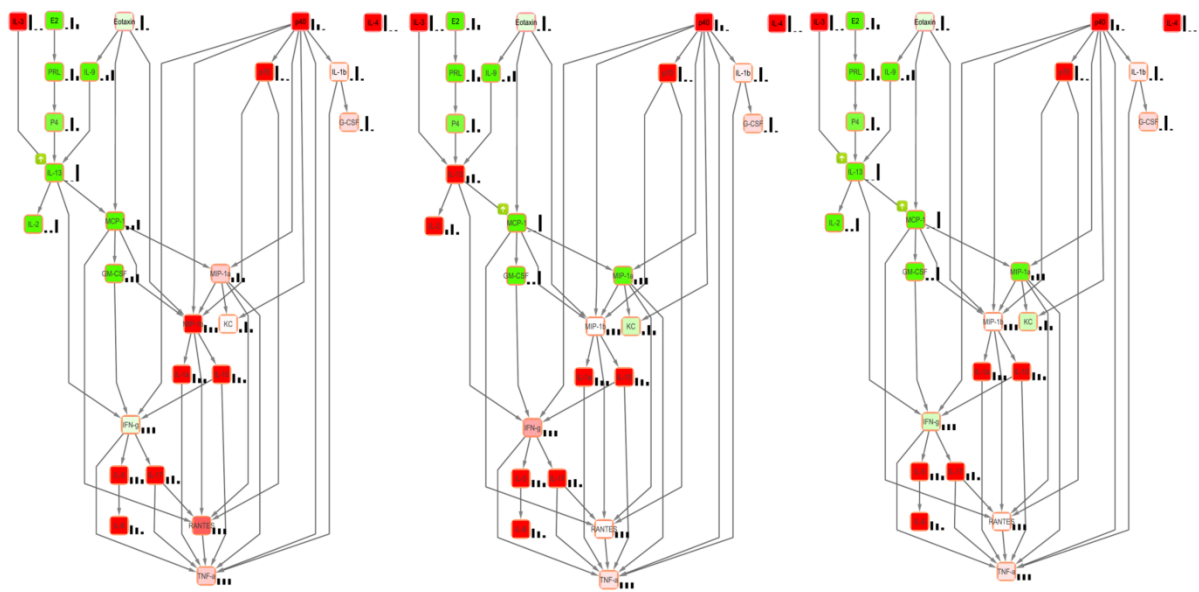


B

Additional file 4



Additional file 5

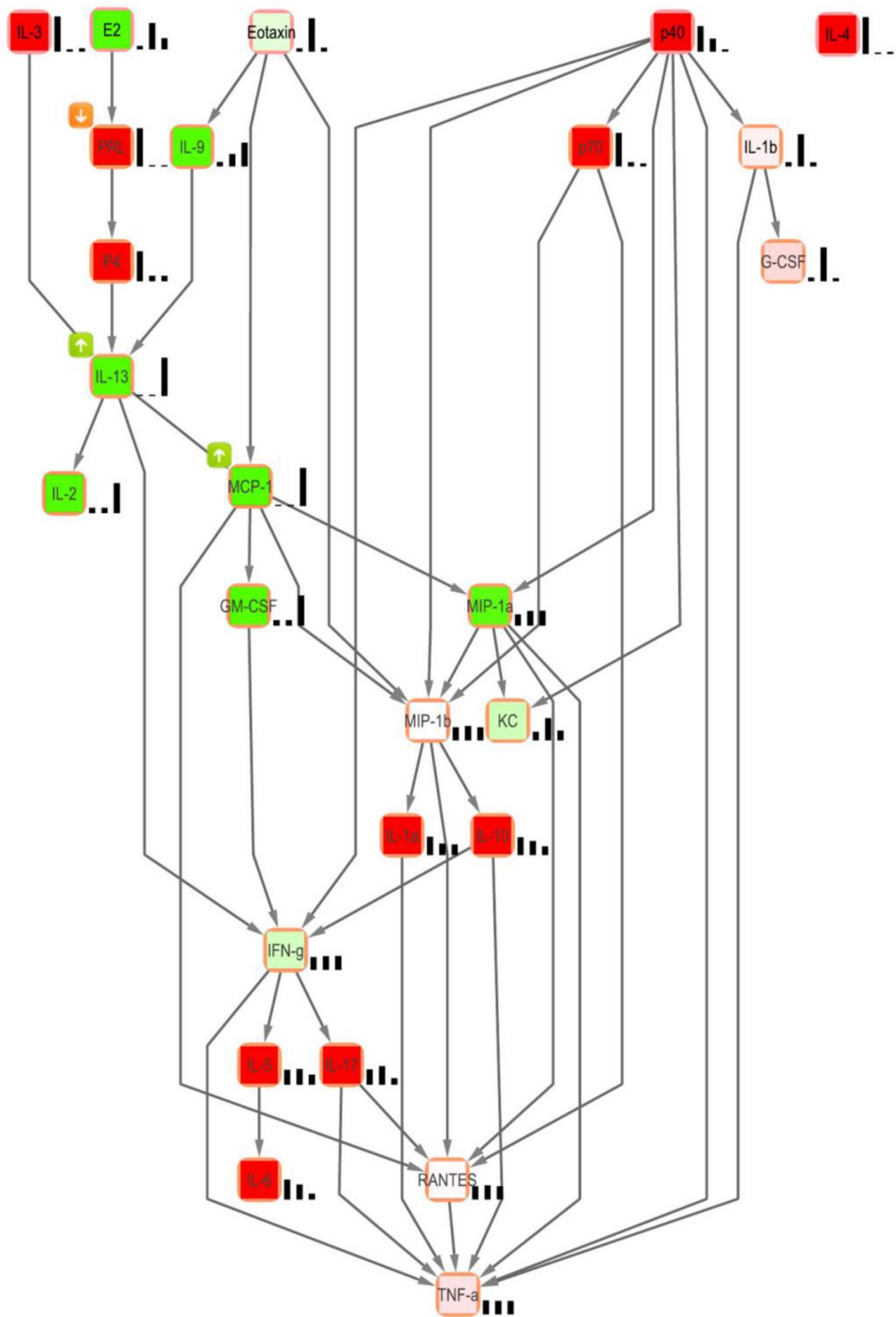


A

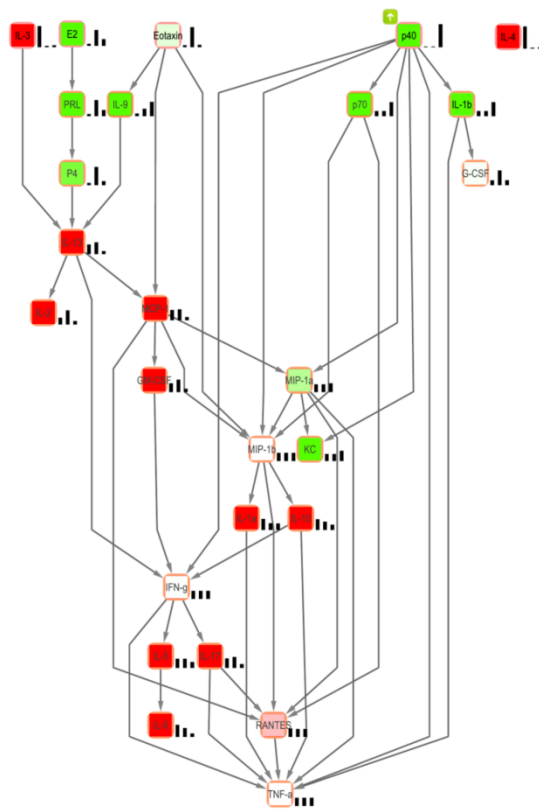
B

C

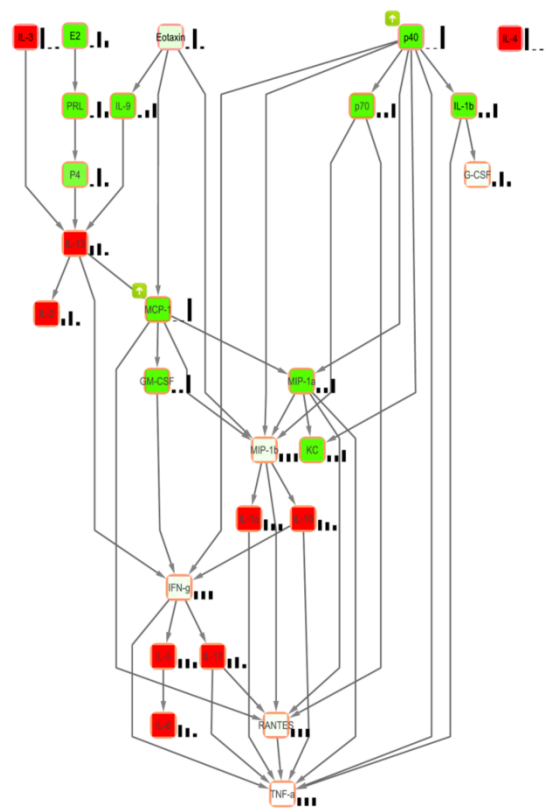
Additional file 6



Additional file 7

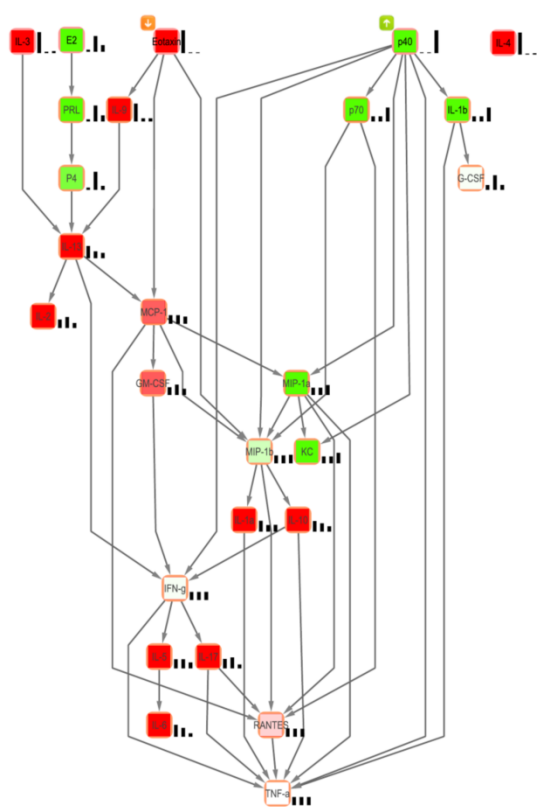


A

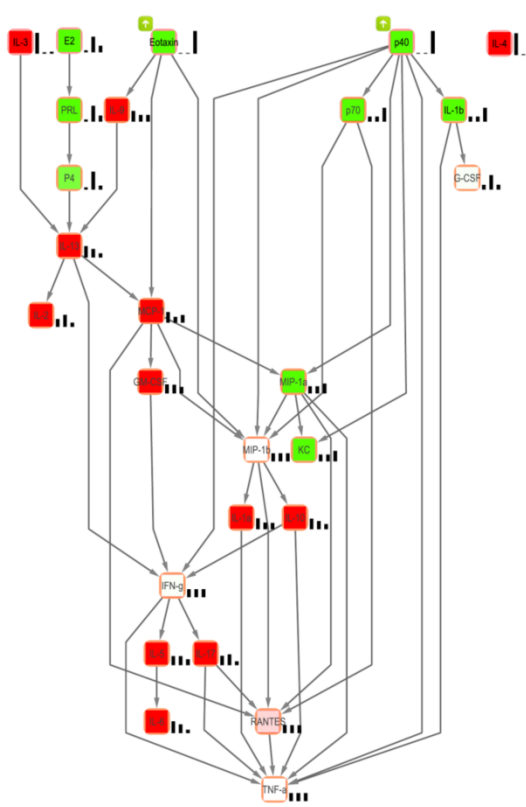


B

## Additional file 8



A



B

Additional file 9

| <b>Cytokines</b>                                               | <b>Low</b> | <b>Medium</b> | <b>High</b> |
|----------------------------------------------------------------|------------|---------------|-------------|
| <b>MIP-1<math>\alpha</math></b>                                | 0.235      | 0.687         | 0.078       |
| <b>MIP-1<math>\alpha</math></b> <sub>+IL-12 (p40)</sub>        | 0.319      | 0.319         | 0.363       |
| <b>MIP-1<math>\alpha</math></b> <sub>+MCP-1</sub>              | 0.270      | 0.360         | 0.370       |
| <b>MIP-1<math>\alpha</math></b> <sub>+IL-12 (p40)+MCP-1</sub>  | 0.200      | 0.200         | 0.600       |
| <b>MIP-1<math>\beta</math></b>                                 | 0.607      | 0.208         | 0.186       |
| <b>MIP-1<math>\beta</math></b> <sub>+IL-12 (p40)</sub>         | 0.333      | 0.333         | 0.334       |
| <b>MIP-1<math>\beta</math></b> <sub>+Eotaxin</sub>             | 0.323      | 0.368         | 0.309       |
| <b>MIP-1<math>\beta</math></b> <sub>-Eotaxin</sub>             | 0.339      | 0.332         | 0.329       |
| <b>MIP-1<math>\beta</math></b> <sub>+IL-12 (p40)+Eotaxin</sub> | 0.333      | 0.333         | 0.333       |
| <b>MIP-1<math>\beta</math></b> <sub>+IL-12 (p40)-Eotaxin</sub> | 0.324      | 0.324         | 0.352       |
| <b>MIP-1<math>\beta</math></b> <sub>+MCP-1</sub>               | 0.321      | 0.357         | 0.321       |
| <b>MIP-1<math>\beta</math></b> <sub>+IL-12 (p40)+MCP-1</sub>   | 0.331      | 0.331         | 0.339       |
| <b>IFN-<math>\gamma</math></b>                                 | 0.504      | 0.299         | 0.197       |
| <b>IFN-<math>\gamma</math></b> <sub>+IL-13</sub>               | 0.325      | 0.337         | 0.338       |
| <b>IFN-<math>\gamma</math></b> <sub>+IL-12 (p40)</sub>         | 0.333      | 0.333         | 0.334       |
| <b>IFN-<math>\gamma</math></b> <sub>+IL-12(p40)+IL-13</sub>    | 0.321      | 0.321         | 0.355       |

Additional file 10

|                                | Low   | Medium | High  |
|--------------------------------|-------|--------|-------|
| <b>IL-3</b>                    | 0.919 | 0.024  | 0.057 |
| <b>IL-13</b>                   | 0.400 | 0.499  | 0.101 |
| <b>IL-13</b> <sub>IL-3_L</sub> | 0.410 | 0.507  | 0.083 |
| <b>IL-13</b> <sub>IL-3_M</sub> | 0.333 | 0.333  | 0.335 |
| <b>IL-13</b> <sub>IL-3_H</sub> | 0.273 | 0.446  | 0.281 |
| <b>IL-2</b>                    | 0.274 | 0.602  | 0.124 |
| <b>IL-2</b> <sub>IL-3_H</sub>  | 0.278 | 0.610  | 0.111 |
| <b>IL-2</b> <sub>IL-3_M</sub>  | 0.252 | 0.456  | 0.292 |
| <b>IL-2</b> <sub>IL-3_H</sub>  | 0.215 | 0.526  | 0.258 |
| <b>MCP-1</b>                   | 0.431 | 0.458  | 0.111 |
| <b>MCP-1</b> <sub>IL-3_L</sub> | 0.437 | 0.462  | 0.102 |
| <b>MCP-1</b> <sub>IL-3_M</sub> | 0.391 | 0.380  | 0.229 |
| <b>MCP-1</b> <sub>IL-3_H</sub> | 0.359 | 0.436  | 0.205 |

Additional file 11

| <b>Cytokines</b>                                               | <b>Low</b> | <b>Medium</b> | <b>High</b> |
|----------------------------------------------------------------|------------|---------------|-------------|
| <b>MIP-1<math>\alpha</math></b>                                | 0.235      | 0.687         | 0.078       |
| <b>MIP-1<math>\alpha</math></b> <sub>+IL-12 (p40)</sub>        | 0.319      | 0.319         | 0.363       |
| <b>MIP-1<math>\alpha</math></b> <sub>+MCP-1</sub>              | 0.270      | 0.360         | 0.370       |
| <b>MIP-1<math>\alpha</math></b> <sub>+IL-12 (p40)+MCP-1</sub>  | 0.200      | 0.200         | 0.600       |
| <b>MIP-1<math>\beta</math></b>                                 | 0.607      | 0.208         | 0.186       |
| <b>MIP-1<math>\beta</math></b> <sub>+IL-12 (p40)</sub>         | 0.333      | 0.333         | 0.334       |
| <b>MIP-1<math>\beta</math></b> <sub>+Eotaxin</sub>             | 0.323      | 0.368         | 0.309       |
| <b>MIP-1<math>\beta</math></b> <sub>-Eotaxin</sub>             | 0.339      | 0.332         | 0.329       |
| <b>MIP-1<math>\beta</math></b> <sub>+IL-12 (p40)+Eotaxin</sub> | 0.333      | 0.333         | 0.333       |
| <b>MIP-1<math>\beta</math></b> <sub>+IL-12 (p40)-Eotaxin</sub> | 0.324      | 0.324         | 0.352       |
| <b>MIP-1<math>\beta</math></b> <sub>+MCP-1</sub>               | 0.321      | 0.357         | 0.321       |
| <b>MIP-1<math>\beta</math></b> <sub>+IL-12 (p40)+MCP-1</sub>   | 0.331      | 0.331         | 0.339       |
| <b>IFN-<math>\gamma</math></b>                                 | 0.504      | 0.299         | 0.197       |
| <b>IFN-<math>\gamma</math></b> <sub>+IL-13</sub>               | 0.325      | 0.337         | 0.338       |
| <b>IFN-<math>\gamma</math></b> <sub>+IL-12 (p40)</sub>         | 0.333      | 0.333         | 0.334       |
| <b>IFN-<math>\gamma</math></b> <sub>+IL-12(p40)+IL-13</sub>    | 0.321      | 0.321         | 0.355       |