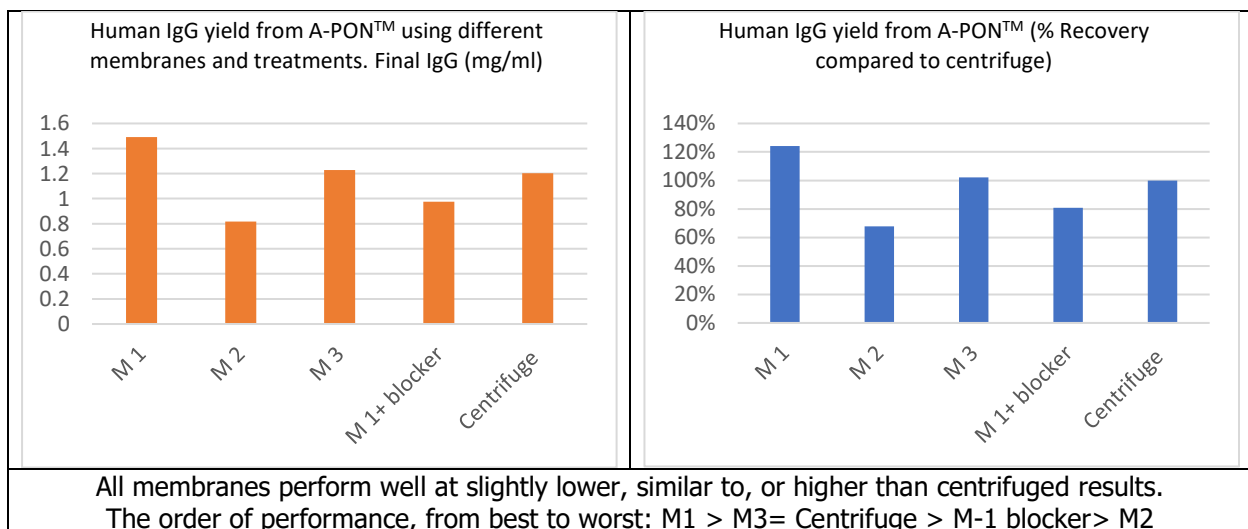
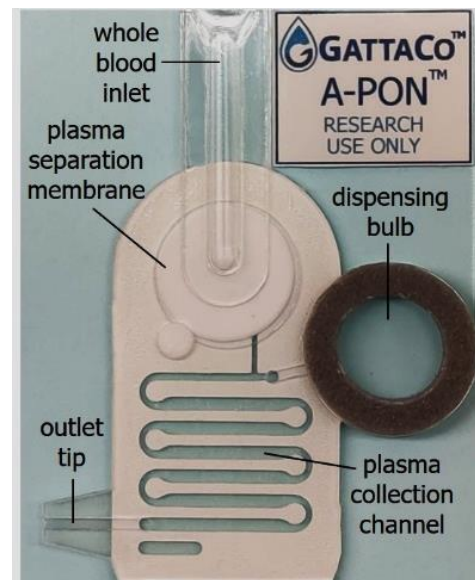


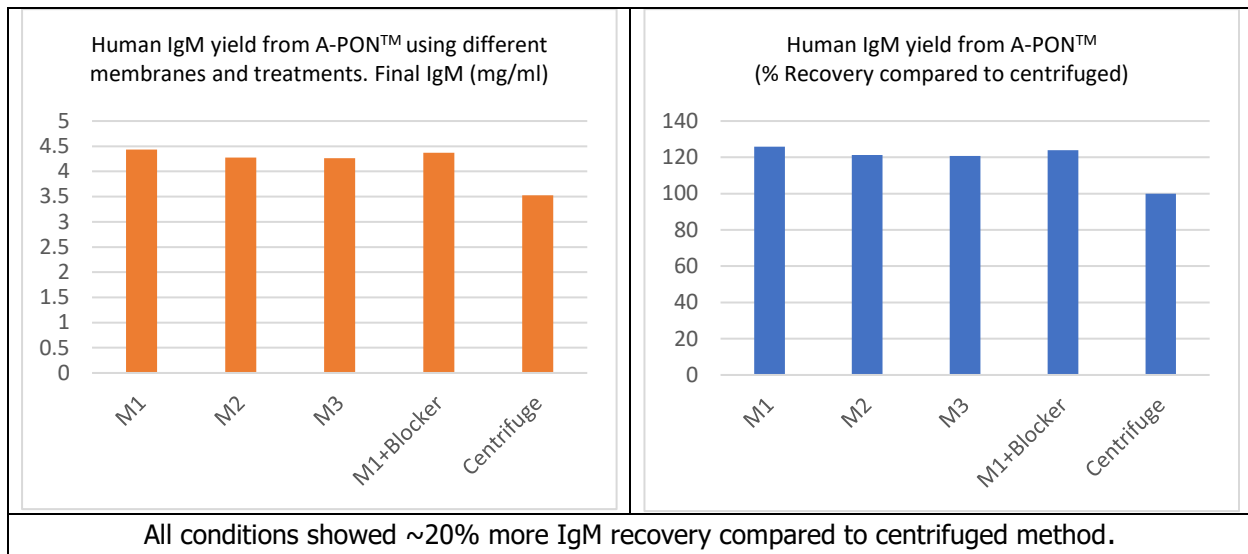
Application Notes:

The A-PON™ and its Utility for Next-Generation Rapid Antibody Assays

The A-PON™ is a sample preparation and plasma separation tool for Point-of-Care (POC) testing. It is a combination of a size-exclusion filtration membrane and microfluidics that enables the collection of whole blood, passive separation of plasma, and dispensing of a metered amount of plasma for IVD testing.

The A-PON™ -15 collects 75 µl of whole blood from a finger stick and dispenses 15 µl of plasma in 3 minutes. Optimized for antibody collection, the A-PON™ has been shown to separate plasma containing 80-120% *more* Total Human IgG and IgM antibodies for rapid COVID-19 testing compared to the same volume of whole blood and 10-20% *more* than centrifuge derived plasma. As shown in the charts below we have compared plasma separation membranes from separate vendors. M1 performs better than all membranes, and better than centrifuged plasma.





Most current rapid COVID-19 antibody test strips, or Lateral Flow Assays, claim the ability to work with plasma, serum, or whole blood samples, and usually call for the same volume of either sample type. The strips have plasma separation membranes integrated into them, so even though whole blood is added, it is the plasma that is analyzed. However, plasma contains roughly 2x the number of antibodies as the same volume of whole blood. While you could add 2x the volume of whole blood compared to the volume of plasma that is called for to have a near equivalent sample, many strips are blood-volume limited by their design and adding excess blood may cause the device to malfunction, possibly unknowingly.

Using A-PON™ derived plasma in lateral flow, biosensor, or other rapid antibody assay platforms, the following assay parameters may be improved:

- **Sensitivity:** Increased number of antibodies compared to the same volume of whole blood (due to elimination of cells) and higher than centrifuge derived plasma (likely due to size-exclusion rather than density-based separation technique).
- **Specificity & Accuracy:** While much of this is dependent on the quality of the reagents used, the A-PON™ also adds value by providing a higher quality / purity sample

with minimal hemolysis and reduced background. This can add to greater confidence in calling the result.

- **Repeatability:** Same volume & quality of sample for each test. Sample output is metered to +/- 5%.
- **Quantitation:** With a precisely metered output, independent of hematocrit, an assay can be quantitative. This is potentially important in identifying the progression or stage of a disease and possible level of immunity of the individual.
- **Versatility:** The A-PON™ can be used as a stand-alone tool, the technology can be integrated into a diagnostic device, or it can be configured for remote (home) sampling for shipping high-quality liquid plasma to a clinical lab for high-throughput testing.

The ability to separate, collect and meter liquid plasma at the point of need has been a missing component of the otherwise rapidly advancing field of POC diagnostics. GattaCo's goal is to enable a new generation of de-centralized, high-quality diagnostic testing to facilitate rapid resolution of acute health emergencies and more efficient management of long-term challenges.

Please visit www.gattaco.com for more information.