

<b>Expressed Protein Arrays</b>	
<b>Service Title</b>	Expressed Protein Arrays
<b>Workflow Code</b>	PRO-ARR
<b>Short Service Description</b>	From gene(s) of interest over protein expression to protein array to high-quality data in a single workflow
<b>Base Price (Price per unit)</b>	Price on enquiry
<b>Turn Around Time</b>	Dependent on service package selected: 12-16 weeks for cloning and small- scale expression of 100 genes 1 week for printing 100 slides each containing 4 arrays 4 weeks for analyzing 400 samples on the arrays 10 weeks for data analysis and reporting (refer to sample submission information below)
<b>Detailed description and background</b>	
<p>Protein microarrays represent miniaturized solid-phase affinity binding assays employing short peptides, whole proteins (recombinant or natural), antibodies, cell lysates or whole cells printed onto suitable microarray substrates such as coated glass microscopy slides, membranes or plastic devices. Tens, hundreds or thousands of proteins can be arrayed onto a solid surface to create discrete micro-reaction sites (features) and to perform multiple assays in parallel using small reaction volumes.</p> <p>After applying suitable labels (e.g. fluorescence) to samples of interest (such as antibodies, proteins or serum) in a direct or indirect (when using secondary antibodies) fashion and incubation of the samples on compatible protein microarrays, binding events at individual features can be determined by measuring the amount of fluorescence label retained on each spot.</p> <p>Typical protein microarray applications include</p> <ul style="list-style-type: none"> <li>- antibody-profiling on cell lysate arrays, protein and peptide arrays;</li> <li>- protein expression profiling on low-, moderate- or high-density antibody arrays;</li> <li>- biomarker validation in reverse phase cell lysate arrays;</li> <li>- drug selectivity profiling and functional characterization of polymorphic protein variants (Pharmacoproteomics).</li> </ul>	
<b>Service Details</b>	
<p>CPGR offers a full protein microarray service from cloning and expression to printing, processing, scanning and data analysis. The client can send us their clones of interest or we can source them through commercial suppliers. Using our protein expression workflows we can produce these proteins in our baculovirus expression system (see our protein expression service listing or visit <a href="http://www.cpgr.org.za">www.cpgr.org.za</a> for more information.</p> <p>The service provides the following full package:</p> <ol style="list-style-type: none"> <li>1. Purchase sequence verified clones from commercial sources or provide cDNA directly.</li> <li>2. Subclone gene of interest in CPGR's transfer vector. Plasmids are then purified and verified by DNA sequencing.</li> <li>3. Transfect Sf21 cells with the recombinant vector together with baculoviral DNA to generate recombinant baculoviral vectors.</li> <li>4. Amplify recombinant baculovirus by infecting Sf21 cells to produce large amounts of high titre virus stock. Recombinant viral stocks are then verified by sequencing and the viral titre determined by real time quantitative PCR.</li> <li>5. Optimize recombinant protein expression in suspension Sf21 culture cells.</li> <li>6. Confirm correct protein expression by western blot analysis.</li> <li>7. Protein array printing using a variety of protein array formats on a standard high-throughput QArray2 (Genetix) contact printer.</li> </ol> <p>8. Microarray processing: Standard protein hybridizations done in an automated processing and incubation station (Tecan HS 4800) in single, dual or quad format. Only small amounts of patient serum</p>	

<p>samples used for the assay.</p> <p>9. Scanning: All scanning done in 4u microarray reader compatible with most existing microarray designs and formats as well as with arrays printed in 96 MTP formats.</p> <p>10. Compatibility: All Cy3 or Cy5 labelled analytes and detection antibodies.</p> <p>Applications: Discovery of disease specific biomarkers, protein-antibody interactions, protein-protein interactions, protein-drug interactions</p>	
<p><b>Service Deliverable</b></p>	
<p>Recombinant transfer vector with the gene of interest, recombinant baculovirus stock, large scale bacterial or insect cell culture, crude protein extract or purified protein.</p> <p>Array with recombinant expressed proteins.</p> <p>Report with results of the QC analysis of the various steps in the expression workflow.</p> <p>Microarray data in raw and filtered form.</p> <p>Detailed bioinformatic analysis available on request.</p>	
<p><b>Sample/Info Submission Info</b></p>	
<p>In a typical example, the customer supplies up to 100 plasmids with the genes of interest. The clones can be sourced from a commercial supplier. The protocol is handled in batches of 100.</p> <p>For microarray processing, samples are accepted in batches up to and including 350 samples. Complete a sample submission form and ship on dry ice. Import permits to be organized.</p>	
<p><b>Pricing Details</b></p>	<p>Price on request</p>
<p><b>Key Words</b></p>	<p>Baculovirus expression vector system, real time PCR, protein production, western blot, protein microarray, assay development, automated hybridization</p>
<p><b>Sample Shipping Address</b></p>	<p>Institute of Infectious Disease and Molecular Medicine, UCT, Faculty of Health Sciences, Wernher and Beit Building, Level 2, Lab S2.09, Anzio Road, Observatory, Cape Town 7925, South Africa</p>
<p><b>Related services</b></p>	<p>Bioinformatics, protein expression</p>

