Cytokines are known best for mediating and regulating immunity, inflammation, and a few development processes during embryogenesis through its secreted molecules. Cytokines include interleukins, interferons, and chemokines. However, cytokines can have pleiotropic, overlapping and or contradictory functions depending on their concentration, cell type acting on and the presence of other cytokines and mediators as well. Among other significant roles played by cytokines are seen in angiogenesis and cancer. Established Elisa kits for Cytokines manufacturers have considered bringing to the market a wide variety of cytokine antibodies, proteins and kits for innate and immune research purposes hence providing high-specified human cytokine elisa kits. FabiolaFor (2015) advises that before going for the Elisa kit, one must study the kit’s functionality, usability, and viability. Besides, the buyer must determine the optimal signal and lowest background for the Elisa against each other in a preliminary experiment. (FabiolaFor, 2015).

Determining the optimal signal and lowest background for the Elisa in a preliminary experiment means including a range of serial dilutions for the cytokine standards. However, the instructions provided for the experiment are specific; often a range on the Technical Data Sheet (TDS) for Elisa reagents is provided. A maximum recovery of cytokine can only be achieved when the vial of cytokine is quick-spun before opening. More information about the Elisa Kits, Cytokines and Elisa Kits for Cytokines is provided below.
Elisa Cytokine Assay

According to Smith (2011), the Elisa cytokine assays are very reliable and heavily relied on by researcher due to their tried-and-true solutions. Smith states that a good Elisa system must have good antibodies and detection reagents for the essay. Despite the fact that Elisa assays aren’t that fast, they always need large sample volumes than other assay types available. This makes Elisa cytokine assays a must-have for the researchers who are not on tight schedules and deadlines. However, the modern elisa assays for cytokines come with new techniques such as the bead-based assays or antibody assays that provide a possibility of a higher throughout.

Besides, researchers are challenged finding the best, high-quality ELISAs to measure specific analytes. This is due to the rising number of targets thereby forcing researchers to look out for companies that provide the ever-expanding Elisas to match up. ELIspot, apparently the modified form of the Elisa assay available, is very useful in determining the number and type of cytokine-producing cells in a sample, at the level of the single cell (Smith, 2011). The researcher using the elisa cytokine assay will be able to count the cell individually due to its sensitivity to reveal that individual cells are producing which cytokine. Note that this is made possible as the assay reagents capture the secreted cytokine rapidly as it revealed from the
plated cell right before it gets diluted.

Multi-Analyte Elisa

A multi-analyte elisa, also known as a multiplex assay is capable of measuring dozens of analytes in just a single cycle of the assay, unlike procedures that only measure one analyte at a time. Multi-analyte elisa are widely applied in functional genomics experiments that aim at detecting or assay the state of all biomolecules of a particular class within a biological sample, hence determine the effect of an experimental treatment or the effect of a DNA mutation over all the biomolecules in the sample. A good example of this class includes mRNAs, proteins. However, this ability of multi-analyte elisa of being able to perform the multiplex assay experiments in measuring big numbers of biomolecular analytes is made possible by the completion of the human genome sequence as well as other model organisms. Below are some of the traits of the multi-analyte elisa.

- Multi-analyte elisa can detect up to 12 cytokines or chemokines
- Has high sensitivity and linearity
- Has screened and verified capture and detection antibodies
- Uses standard ELISA equipment

Mouse Cytokine Elisa Kit

According to NeoScientific (2015), a mouse cytokine elisa kit is a rapid, sensitive, and economical tool used to simultaneously detect the levels of 40 different cytokines, chemokines, and more in a single sample. No specialized experiment is required in this case. A mouse cytokine elisa kit has the following contents:

- 4 array membranes
- 4-well multi-dish
- Array buffers
• Wash buffers

• Antibody detection cocktail

• Streptavidin-HRP

• Chemiluminescent Detection Reagents

• Transparency overlay template

• Detailed protocol

Cytokine Elisa Protocol

Cytokine elisa protocol is a method which provides a general procedure for surveying a specific panel of cytokines or chemokines involved in autoimmunity, inflammation or T-cell biology in cell culture supernatant, serum or plasma, using specified reagents. The procedures are available in all ELISA kits, using the provided reagents. The following is a sample cytokine elisa protocol as approved by NeoScientific (2015).

<table>
<thead>
<tr>
<th>Component / Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOX 1: Shipped on blue ice packs. Store at -20 °C.</td>
<td></td>
</tr>
<tr>
<td>Avidin-HRP Conjugate</td>
<td>One 1.5-ml tubes</td>
</tr>
<tr>
<td>10% BSA</td>
<td>15 ml bottle</td>
</tr>
<tr>
<td>Donkey Serum</td>
<td>15 ml bottle</td>
</tr>
<tr>
<td>BOX 2: Shipped at ambient temperature. Store at 4 °C.</td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Quantity</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>96-well pre-coated Capture Antibody microplate</td>
<td>One plate of 12 strips in a pouch</td>
</tr>
<tr>
<td>Detection Antibody Dilution Tube Strip</td>
<td>One strip of 12 tubes</td>
</tr>
<tr>
<td>Sample Dilution Buffer Stock</td>
<td>60 ml bottle</td>
</tr>
<tr>
<td>Assay Buffer Stock</td>
<td>60 ml bottle</td>
</tr>
<tr>
<td>Wash Buffer (10 × Concentrate)</td>
<td>125 ml bottle</td>
</tr>
<tr>
<td>Development Solution</td>
<td>25 ml bottle</td>
</tr>
<tr>
<td>Stop Solution</td>
<td>60 ml bottle</td>
</tr>
</tbody>
</table>

**BOX 3: Shipped on blue ice packs. Store at -20 °C.**

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antigen Standards</td>
<td>One box of 12 1.5-ml tubes</td>
</tr>
<tr>
<td>Detection Antibodies</td>
<td>One box of 12 1.5-ml tubes</td>
</tr>
</tbody>
</table>

*Table one: Kit contents as approved by NeoScientific (2015)*

Brief Protocol approved by NeoScientific (2015)

The brief protocol is meant for experience users only.

- Prepare a replicate
- Prepare replicate serial dilutions of the Antigen Standard and your experimental samples.
- Pipette 50 µl of Assay Buffer into each well of the 8-well ELISA strips.
• Transfer 50 µl samples and/or standards to the appropriate wells of the ELISA strips.

• Gently shake or tap plate for 10 seconds. Incubate for 2 hours at room temperature.

• Washing ELISA Wells:
  Decant or aspirate well contents. Add 350 µl 1 × Washing Buffer. Gently shake or tap plate for 10 seconds. Decant or aspirate. Blot array upside down on absorbent paper to remove any residual buffer. Repeat wash twice more.

• Pipette 100 µl of Detection Antibody solution. Incubate 1 hour at room temperature.

• Wash ELISA wells as described above.

• Add 100 µl Avidin-HRP solution to all wells. Incubate for 30 minutes at room temperature.

• Wash ELISA wells for a total of 4 washes.

• Add 100 µl of Development Solution to each well. Incubate the plate for 15 minutes at room temperature in the dark.

• Add 100 µl of Stop Solution to each well. The color changes from blue to yellow.

• Read absorbance at 450 nm within 30 minutes of stopping the reaction. If wavelength correction is available, subtract readings at 570 nm from the reading at 450 nm.

Cytokine Elisa Array

Cytokine elisa array is available for humans, mouse and rats. A human cytokine elisa array in this case is a chemiluminescent detection that allows you to monitor the abundance of 32 human cytokines simultaneously. This assay is fast and sensitive hence
can be used for quantitative comparison of these cytokines among different samples. The human cytokine elisa array has the following benefits:

- It is highly sensitive hence requiring very minimal amount of sample
- Allows quantitative comparison of expression among samples
- No special equipment is required
- It is easy to use as it has a simple procedure with reagents included.

References


Other essays related to Elisa kits:

http://neobiolab.com/research/elisa-kits-2

http://neobiolab.com/research/over-20000-high-sensitivity-elisa-kits-available