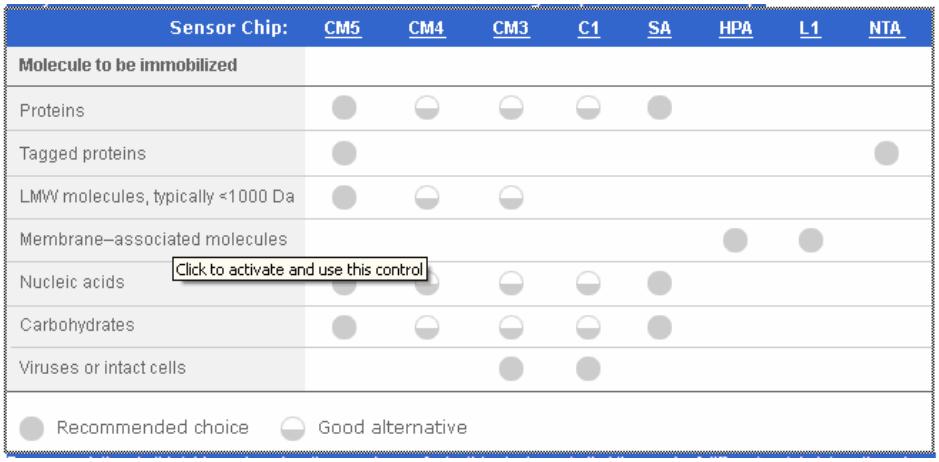
Biacore CHIPS and COUPLING CHEMISTRIES



Biacore CHIPS AND COUPLING CHEMISTRIES

1) CM5 (Carboxymethyl dextran surface):

This chip is the most commonly used. The following types of coupling chemistries are available for activating this surface:

Matrix: carboxymethylated dextran covalently attached to a gold surface. Molecules are covalently coupled to the sensor surface via amine, thiol, aldehyde or carboxyl groups. Interactions involving small organic molecules, such as drug candidates, through to large molecular assemblies or whole viruses can be studied. A high binding capacity gives a high response, advantageous for capture assays and for interactions involving small molecules. High surface stability provides accuracy and precision and allows repeated analysis on the same surface.

AMINE. Direct linkage via primary amines on the protein/peptide. Surface activation is by EDC (N-ethyl-N'-(3-dimethyl aminopropyl)-carbodiimide hydrochloride), and NHS (N-hydroxysuccinimide).

SURFACE THIOL. Direct linkage via thiols generated on the chip surface. Surface activation is by EDC/NHS followed by preparation with Cystamine and DTT.

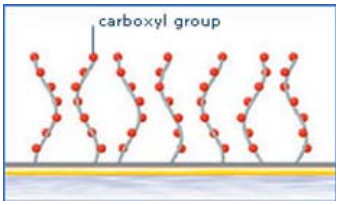
LIGAND THIOL. Direct linkage via thiols on the protein/peptide. Surface activation is by EDC/NHS followed by preparation with PDEA (pyridinyldithioethaneamine hydrochloride).

ALDEHYDE. Direct linkage via carbohydrate on the protein/molecule. Surface activation is by EDC/NHS followed by preparation with hydrazine.

Sensor Chip CM5

The most versatile chip available –

the first choice for immobilization via -NH_2, -SH, -CHO, -OH or -COOH groups



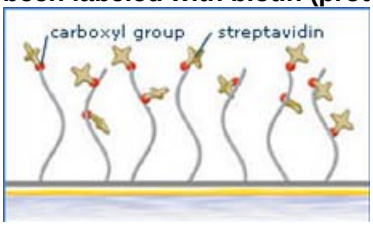
- Suitable for ligand fishing
- Suitable for high capacity capture
- Supports a wide range of immobilization levels
- Attach proteins, nucleic acids, carbohydrates or small molecules
- Couple to carboxyl groups on the sensor surface via -NH2, -SH, -CHO, -OH or -COOH

2) HPA (Hydrophobic surface):

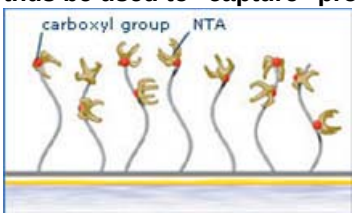
This chip is essentially a "blank" chip that lacks the carboxymethyl dextran of the CM5 chip. The surface is composed of hydrophobic alkanethiol goups. This chip can be used to mimic conditions of an ELISA (hydrophobic adsorption of protein), or to lay down lipid monolayers of various compositions. The latter can be used to study protein-lipid interactions or protein-protein interactions using a membrane-associated protein/receptor.

3) SA (Streptavidin surface):

This chip is a prepared CM5 chip with streptavidin coupled to the surface. This surface can be used to "capture" any molecule that has been labeled with biotin (protein, peptide, DNA, oligos, etc.).



4) NTA (Nickel Chelation surface):
This chip has been prepared with a nickel-chelating agent, and can thus be used to "capture" proteins/peptides containing His tags.



5) Pioneer chip L1:
This chip is useful for the rapid and reproducible capture of liposomes.

6) Pioneer chip B1:
This chip has a shortened dextran matrix and is useful with analytes that show a high degree of non-specific binding to the CM-5 chip.