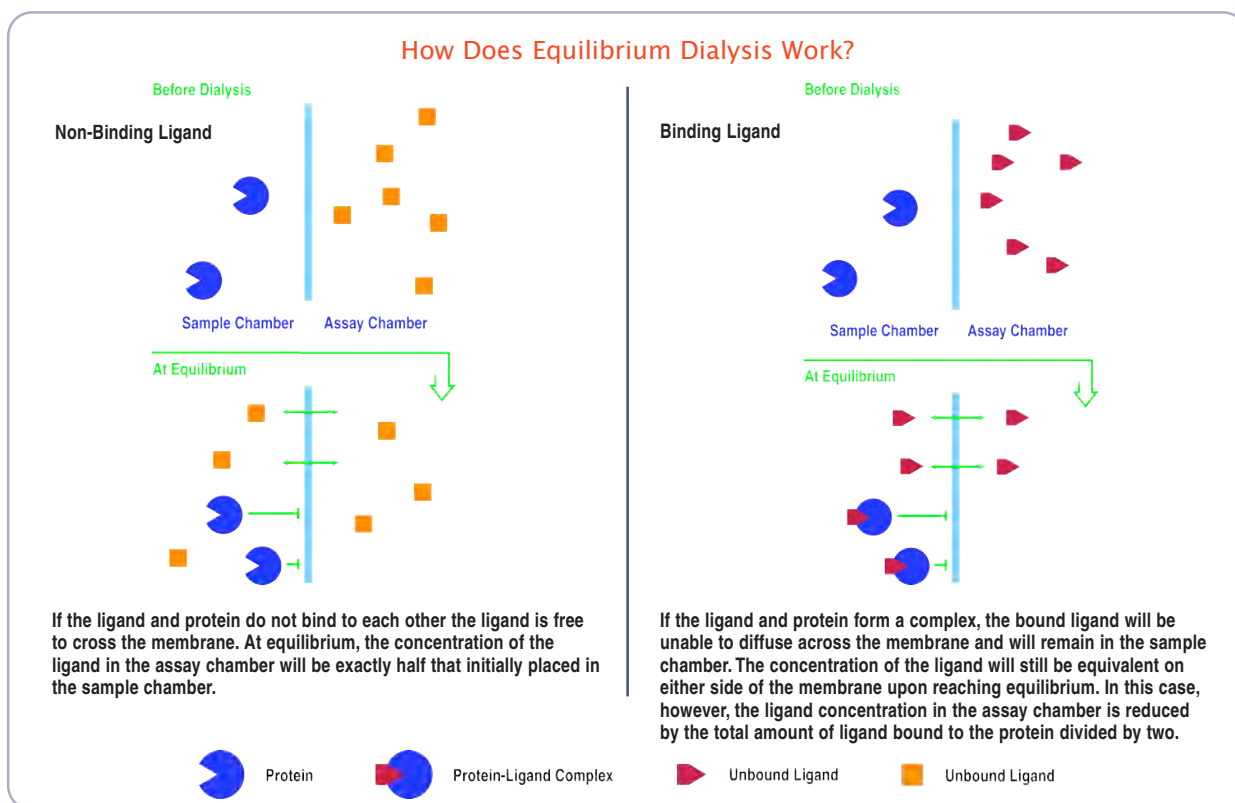


Introduction to Equilibrium Dialysis



Equilibrium dialysis is a specific application of dialysis that is important for the study of the binding of small molecules and ions by proteins. It is one of several methods available for this purpose, and its attractive feature continues to be its physical simplicity. Another attractive feature of equilibrium dialysis is the ability to perform interaction studies without the use of fluorescent or radiolabeled tags.

Generally, the objective of an equilibrium dialysis experiment is to measure the amount of a ligand bound to a macromolecule. This is typically done through an indirect process because in any mixture of the ligand and macromolecule, it is difficult to distinguish between the bound and free ligand. If, however, the free ligand can be dialyzed through a membrane, until its concentration across the membrane is at equilibrium, the free ligand concentration can be measured easily. Data obtained under different experimental conditions then provides information on various binding parameters of the compounds

such as the binding constants and the number of binding sites or binding capacity.

Harvard Apparatus offers five types of Equilibrium DIALYZERS™. These products can meet virtually all of your bind-interaction application requirements:

Fast Micro-Equilibrium DIALYZER™ – Reusable

The reusable Micro-Equilibrium DIALYZER is available as 2-chamber system for quicker equilibration time using dialysis membranes with larger surface areas. It is used to study interactions between biomolecules such as the binding of a ligand to a protein. For sample volumes from 25 µl to 500 µl, see pages 50-51.

Multi-Equilibrium DIALYZER™ – Reusable

For simultaneous and highly reproducible equilibrium dialysis of up to 20 samples with volumes from 0.2 to 5 ml, see page 52.

DispoEquilibrium DIALYZER™ – Single Use

A disposable version of the Micro-Equilibrium DIALYZER suitable for samples from 25 to 75 µl, see page 53.

96-Well DispoEquilibrium DIALYZER™ – Single Use

A 96-well disposable equilibrium dialyzer for high throughput interaction studies. For samples from 50 µl to 300 µl, see page 54.

applications

- Protein-drug binding assays
- Receptor binding assays
- Ligand binding assays
- Protein-protein interactions
- Protein-DNA interactions
- Serum protein binding

Fast Micro-Equilibrium DIALYZER

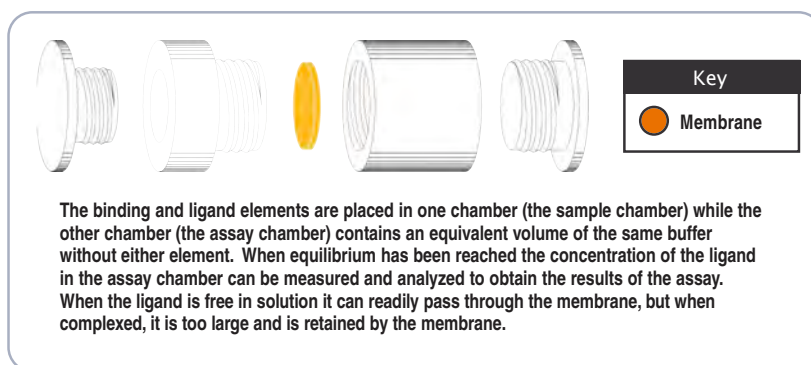
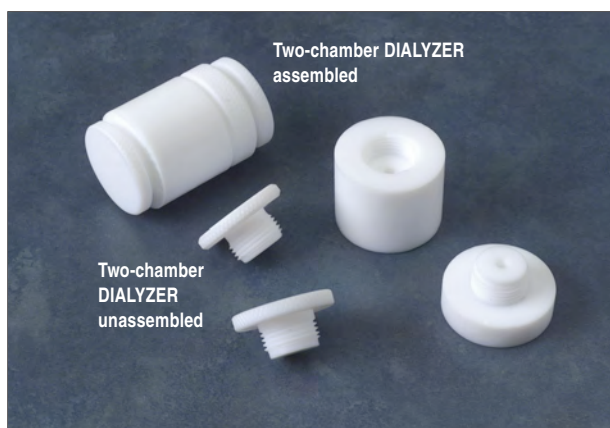
Samples from 25 μ l to 500 μ l (Reusable)

advantages

- Easy to use
- Leak-proof
- Reusable
- Available for a range of sample sizes
- Faster equilibration
- High membrane area/sample volume ratio
- Membranes available with MWCO's to suit almost any application
- Made of Teflon – totally inert
- High sample recovery
- Low protein binding
- Autoclaveable

applications

- Protein binding assays
- Protein-drug binding assays
- Receptor binding assays
- Ligand binding assays
- Protein-protein interactions
- Protein-DNA interactions



The Fast Micro-Equilibrium DIALYZER is a unique equilibrium dialysis chamber for small samples (25 to 1500 μ l) and is simple to use.

Two chambers of equivalent volume are joined together with a membrane between them, as shown. Equal volumes of sample and buffer are loaded into respective chambers (the sample chamber and the assay chamber) and sealed by threaded solid caps. The DIALYZER assembly is rotated along the membrane axis from time to time. The entire system can also be placed in a thermostat for temperature-controlled dialysis. When equilibrium has been reached the chambers can be opened at each end to extract the sample for analysis. When the ligand is free in solution it can readily pass through the membrane, but when complexed, it is too large and is retained by the membrane.

The Fast Micro-Equilibrium DIALYZER uses membranes and chambers with high surface area to sample volume ratios. High ratio and short diffusion distances provide 2 to 5 times faster equilibration.

Each DIALYZER includes two chambers (body plus link) and two solid caps.

Fast Micro-Equilibrium DIALYZERS & Membranes

Ordering Information

Fast Micro-Equilibrium DIALYZERS & Membranes							
Chamber Volume:	25 µl	50 µl	100 µl	250 µl	500 µl	1000 µl	1500 µl
Fast Micro-Equilibrium DIALYZERS							
Qty. of 1	SSF 0050.1	SSF 0100.1	SSF 0200.1	SSF 0500.1	SSF 1000.1	SSF 2000.1	SSF 3000.1
Qty. of 5	SSF 0050	SSF 0100	SSF 0200	SSF 0500	SSF 1000	SSF 2000	SSF 3000
Additional (Link) Chambers							
Qty. of 1	SERF 0025.1	SERF 0050.1	SERF 0100.1	SERF 0250.1	SERF 0500.1	SERF 1000.1	SERF 1500.1
Qty. of 5	SERF 0025.5	SERF 0050.5	SERF 0100.5	SERF 0250.5	SERF 0500.5	SERF 1000.5	SERF 1500.5
Membranes: Pack of 25							
for Chamber Volume:	25µl, 50µl or 100µl			250µl, 500µl, 1000 or 1500µl			
A. Regenerated Cellulose MEMBRANES:							
1k Da MWCO	SBE010S.24			SCE010S.24			
2k Da MWCO	SBE020S.24			SCE020S.24			
5k Da MWCO	SBE050S.24			SCE050S.24			
10k Da MWCO	SBE100S.24			SCE100S.24			
25k Da MWCO	SBE250S.24			SCE250S.24			
50k Da MWCO	SBE500S.24			SCE500S.24			
B. Cellulose Acetate MEMBRANES:							
100-500 Da MWCO	SBE0050K.24			SCE005K.24			
1k Da MWCO	SBE010K.24			SCE010K.24			
2k Da MWCO	SBE020K.24			SCE020K.24			
5k Da MWCO	SBE050K.24			SCE050K.24			
10k Da MWCO	SBE100K.24			SCE100K.24			
25k Da MWCO	SBE250K.24			SCE250K.24			
50k Da MWCO	SBE500K.24			SCE500K.24			
100k Da MWCO	SBE111K.24			SCE111K.24			
300k Da MWCO	SBE333K.24			SCE333K.24			
C. Polycarbonate MEMBRANES:							
0.01 µm Pore Size	SBE0001P.24			SCE0001P.24			
0.05 µm Pore Size	SBE0005P.24			SCE0005P.24			
0.10 µm Pore Size	SBE0010P.24			SCE0010P.24			
0.60 µm Pore Size	SBE0060P.24			SCE0060P.24			

Membranes are supplied either as dry or in 0.05% sodium azide solution. They are ready to use after rinsing with deionized water and buffer.

Regenerated Cellulose membranes are more stable in organic solvents, but the MWCO range is not as sharply defined as that of Cellulose Acetate membranes.

Cellulose Acetate membranes have a sharp MWCO range. They are intended only for aqueous solutions, and the presence of an organic solvent is not recommended.

Polycarbonate membranes are more stable in organic solvents. They are available in four highly controlled pore sizes for a well defined MWCO range.