

## Xu lab protocol and instructions

### INTRACELLULAR SOLUTION FOR BRAIN SLICES Cesium Gluconate solution Xu Lab

*A modified recipe by Xu Lab 081709*

Take fix free glassware and add:

Substance	Concentration (mM)	MW	Amount/50mL
CsOH monohydrate	130	167.93	1.0915g
D-Gluconic acid (50%)	130	196.2	2.074ml (1.23 g/ml)
EGTA	0.2	380.4	0.0038g
MgCl <sub>2</sub>	2	95.21	0.1 mL
CsCl	6	168.4	0.05052g
HEPES (free acid)	10	238.3	0.1192g

Add substances to 45mL of the DD H<sub>2</sub>O initially.

pH would be good around 8.5. You can stabilize it using CsOH and Gluconic acid.

Then add following Sigma compounds located in the -20 C freezer:

Substance	Concentration (mM)	MW	Amount/50mL
Adenosine 5' Triphosphate Sodium Salt (A7699-1G)	2.5	551.1	0.0689g
Guanosine 5' Triphosphate sodium salt hydrate Minimum 95% (G8877-25MG)	0.5	523.2	0.0131g
Phosphocreatine disodium salt hydrate enzymatic approx. 98% (P7936-1G)	10	255.1	0.12755g

Check Osmolarity. This should be approximately ~300-305. You can stabilize using water or D-gluconate acid. In general, ~95% difference between extracellular and intracellular solutions (recording aCSF is ~305 Osm).

Then add enough water to bring the solution amount to the desired amount (50 mL).

After solution has stabilized, take a 1 mL sample, and check pH and Osmolarity again. pH should be ~7.2 – 7.3 and Osmolarity should be 300-305.

Place the solution into 1mL vials and store in -80 Celsius freezer.

Biocytin concentration (% and mM)

1% (10mg) = 26mM  
0.75% (7.5mg) = 20mM  
0.5% (5mg) = 13mM