

Bevan Lab standard external solutions for electrophysiology

Electrophysiology solutions are prepared as 10× stock solutions and diluted for use on the day of the experiment. Bicarbonate is added to all working solutions.

e.g. Working sucrose aCSF = 50 mL stock sucrose aCSF + 50 mL stock bicarbonate + 39.36 g sucrose; made up to 500 mL with deionized water.

At 4 °C the shelf life of stock bicarbonate and sucrose aCSF is ~1 week; stock aCSF and SIF have a shelf life of ~2 weeks.

Bicarbonate

	mM	MW	10×, g/L	10×, g/2L
NaHCO₃	26	84.01	21.8426	43.6852

Sucrose aCSF (slicing solution)

	mM	MW	10×, g/L	10×, g/500 mL
KCl	2.5	74.55	1.8638	0.9319
NaH₂PO₄·H₂O	1.25	137.99	1.7249	0.8624
CaCl₂·2H₂O	0.5	147.01	0.7351	0.3675
MgSO₄·7H₂O	10	246.47	24.6470	12.3235
D-Glucose	10	180.16	18.0160	9.0080
			g/500 mL	
Sucrose *	230	342.30	39.3645	

* add sucrose to working solution (do not include in 10× stock)

aCSF (holding solution)

	mM	MW	10×, g/L	10×, g/500 mL
NaCl	126	58.44	73.6344	36.8172
KCl	2.5	74.55	1.8638	0.9319
NaH₂PO₄·H₂O	1.25	137.99	1.7249	0.8624
CaCl₂·2H₂O	2	147.01	2.9402	1.4701
MgSO₄·7H₂O	2	246.47	4.9294	2.4647
D-Glucose	10	180.16	18.0160	9.0080

SIF (recording solution)

	mM	MW	10×, g/L	
NaCl	126	58.44	73.6344	
KCl	3	74.55	2.2365	
NaH₂PO₄·H₂O	1.25	137.99	1.7249	
CaCl₂·2H₂O	1.6	147.01	2.3522	
MgSO₄·7H₂O	1.5	246.47	3.6971	
D-Glucose	10	180.16	18.0160	