

Protein Calculation Worksheet

For culture media and gamete & embryo manipulation

Protein supplements facilitate gamete and embryo manipulation *in vitro* by preventing the cells from sticking to glass and plastic. Protein may benefit embryo development by altering the solvent properties of the medium to make it more similar to the native tubal environment *in vivo*.

Human Serum Albumin (HSA) solution consists of HSA (100 mg/mL) from a therapeutic grade source material in a saline solution. This represents 10% total protein (w/v), in normal saline.

Serum Substitute Supplement (SSS) consists of 84% HSA (50 mg/mL, 5% w/v) from a therapeutic grade source material and 16% alpha and beta globulins (10 mg/mL, 1% w/v) in a saline solution. This represents 6% total protein (w/v), in normal saline.

Dextran Serum Supplement (DSS) consists of HSA (50 mg/mL, 5% w/v) from a therapeutic grade source material and dextran (20 mg/mL, 2% w/v) added as a non-protein alternative to globulins, in a saline solution. This represents 5% total protein (w/v), in normal saline.

Product	Protein Concentration (mg/mL)	HSA Macromolecule (mg/mL)	Alpha & Beta Globulin Macromolecule (mg/mL)	Dextran Macromolecule (mg/mL)	Dilution into Culture Medium (%v/v)
HSA (9988)	100 mg/mL	100 mg/mL	N/A	N/A	1/20 = 5% v/v (eg. add 0.5 mL of 9988 to 9.5 mL medium)
SSS (99193)	60 mg/mL	50 mg/mL	10 mg/mL	N/A	1/10 = 10% v/v (eg. add 1.0 mL of 99193 to 9.0 mL medium)
DSS (9301)	50 mg/mL	50 mg/mL	N/A	20 mg/mL	1/10 = 10% v/v (eg. add 1.0 mL of 9301 to 9.0 mL medium)

Product	Protein Concentration (mg/mL)	Dextran Macromolecule (mg/mL)	Equivalent Dilution into Culture Medium (%v/v)
CSCM-NXC (90168)	5 mg/mL HSA	N/A	Contains 5% v/v HSA
CSCM-C (90165)	5 mg/mL HSA	N/A	Contains 5% v/v HSA
Complete ECM w/ DSS (90142)	5 mg/mL DSS	2 mg/mL	Contains 10% v/v DSS
Complete MultiBlast w/ DSS (90143)	5 mg/mL DSS	2 mg/mL	Contains 10% v/v DSS