

## Simulated Body Fluid (SBF)

Catalogue #: CC024

Storage: 4-8 °C

Packing Size: 500 mL

### DESCRIPTION:

Kokubo and his colleagues developed an acellular simulated body fluid that has inorganic ion concentrations similar to those of human extracellular fluid, in order to reproduce formation of apatite on bioactive materials in vitro. The simulated body fluid is often abbreviated as SBF or Kokubo solution. The ion concentrations of SBF are given on Table below.

Ion	Simulated body fluid	Human blood plasma
Na <sup>+</sup>	142.0 mM	142.0 mM
K <sup>+</sup>	5.0 mM	5.0 mM
Mg <sup>+</sup>	1.5 mM	1.5 mM
Ca <sup>+</sup>	2.5 mM	2.5 mM
Cl <sup>-</sup>	148.8 mM	103.0 mM
HCO <sub>3</sub> <sup>-</sup>	4.2 mM	27.0 mM
HPO <sub>4</sub> <sup>2-</sup>	1.0 mM	1.0 mM
SO <sub>4</sub> <sup>2-</sup>	0.5 mM	0.5 mM

The pH of SBF is adjusted to pH 7.25 at 36.5 °C, by using 50 mM (=mmol/dm<sup>3</sup>) of tris (hydroxymethyl) aminomethane and approximately 45 mM of HCl. When apatite-forming ability of the specimen is not so high, pH of SBF is sometimes adjusted to pH 7.40.

### APPLICATION:

This fluid can be used for not only evaluation of bioactivity of artificial materials in vitro, but also coating of apatite on various materials under biomimetic conditions.

### REFERENCE:

Kokubo T, et al., Apatite formation on ceramics, metals and polymers induced by a CaO SiO<sub>2</sub> based glass in a simulated body fluid, in Bioceramics, W. Bonfield, G.W. Hastings and K.E. Tanner, Eds. 1991, Butterworth-Heinemann: Oxford.

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