Gibco™ balanced salt solutions are isotonic buffer systems that help keep mammalian cells within their physiological pH range and maintain high viability during short-term incubations. Available in both liquid and powder form, all Gibco balanced salt solutions are manufactured in cGMP, ISO-certified facilities. Regular testing includes osmolality, pH levels, and stability, as well as testing against the presence of endotoxins and bacterial and fungal contamination.

Gibco balanced salt solutions are available in different formulations and formats. See below for the common formulation components and how they may impact your cell culture.

Balanced salt solution formulation guide

Component	Component role	PBS	DPBS	HBSS	EBSS
With Ca^{2+} and Mg^{2+}	Cell adhesion—needed when cells must remain attached to culture substrate	✓	✓	✓	✓
Without Ca^{2+} and Mg^{2+}		✓	✓	✓	✓
With glucose and pyruvate	Energy source and cell survival support—may keep cells alive longer when culture medium is absent	✓	✓	✓	✓
Without glucose and pyruvate			✓	✓	✓
With phenol red	pH indicator—exhibits gradual color change from yellow to pink when pH is between 6.8 and 8.2			✓	✓
Without phenol red				✓	✓
With sodium bicarbonate	Stabilizes pH in CO_2 environments—can be used in CO_2-rich environments such as cell culture incubators			✓	✓

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PBS vs. DPBS

Phosphate buffered saline (PBS) and Dulbecco's phosphate buffered saline (DPBS), both of which include sodium chloride and phosphate buffer, are common reagents used in biological research to maintain pH while minimizing osmotic shock in living cells. However, in contrast to PBS, DPBS also includes potassium chloride and may be formulated with or without calcium and magnesium, as well as with or without glucose and pyruvate. Select PBS or DPBS based on your specific application.

Application	Ca^{2+}, Mg^{2+}	Glucose, pyruvate	PBS Cat. No.	DPBS Cat. No.
Cell dissociation, immunostaining	–	–	10010 70011 20012 70013 18912014	14190 10X: 14200 Powder: 21600
Tissue dissection, assay, immunostaining, perfusion	+	+		14287
Immunoprecipitation, immunohistochemistry	+	–		14040 10X: 14080 Powder: 21300
Cell therapy manufacturing applications	–	–		A1285601 A1285602
	+	–		A1285801
Flow cytometry	–	–	A1286301	

HBSS vs. EBSS

Hanks' balanced salt solution (HBSS) and Earle's balanced salt solution (EBSS) are both isotonic solutions used to maintain osmolality and pH in biological applications. While both include glucose and sodium bicarbonate for short-term maintenance of cells outside of growth medium, EBSS is designed for use under 5% CO_2, whereas HBSS, which is formulated with less sodium bicarbonate, allows for use without CO_2. Select from a variety of HBSS or EBSS formulations specific to your application.

Application	Ca^{2+}, Mg^{2+}	Glucose	Phenol red	Sodium bicarbonate	HBSS Cat. No.	EBSS Cat. No.
Tissue dissociation, perfusion	–	+	–	+	14175	14155
Dissection, staining	–	+	–	–	10X: 14185	
Dissection, cell washing	–	+	+	+	14170	
Live cell procedure, microscopic study with live cells, dissection	+	+	–	+	14025	
Dissection, microscopic study with live cells	+	+	–	–	10X: 14065	
Cell culture, tissue dissociation	+	+	+	+	24020	24010
	+	+	+	–	10X: 14060	

Explore all Gibco balanced salt solutions at
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