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According to assay conditions our restriction endonucleases are divided into five groups. The activity of all restriction endonucleases was evaluated in each buffer containing 100µg/ml bovine serum albumin (BSA). Each group of enzymes is more active in one of the five following reaction buffers:

Buffer 1	10 x conc. (incl. BSA)	100 mM 100 mM 10 mM 1000 µg/ml	Tris-HCl (pH 7.9 at 25 °C) MgCl ₂ Dithiothreitol BSA
Buffer 2	10 x conc.	100 mM 100 mM 500 mM 10 mM	Tris-HCl (pH 7.9 at 25 °C) MgCl ₂ NaCl Dithiothreitol
Buffer 3	10 x conc.	500 mM 100 mM 1000 mM 10 mM	Tris-HCl (pH 7.9 at 25 °C) MgCl ₂ NaCl Dithiothreitol
Buffer 4	10 x conc.	100 mM 100 mM 1500 mM 10 mM	Tris-HCl (pH 7.9 at 25 °C) MgCl ₂ NaCl Dithiothreitol
Buffer 5	10 x conc.	200 mM 100 mM 500 mM 10 mM	Tris-acetate (pH 7.9 at 25 °C) Mg-acetate K-acetate Dithiothreitol

Notes:

1) BSA is not included into all supplied reaction buffers and should be added separately from the supplied stock solution (1 mg/ml). Please have a look into the corresponding data sheet! Buffers and Enzymes are tested extensively to be able to include BSA already into the supplied buffer without any loss of performance. Please have a look into the data sheet. Some restriction endonucleases require Triton X-100 (TX-100). This means that 100 % of the activity is obtained using this additive. Several enzymes - *Bam*H I, *Bgl* I, *Bse*A I, *Bsi*S I, *Bss*A I, *Bst*E II, *Csp*A I, *Eco*R I, *Kpn* I, *Mbo* I, *Nru* I, *Pst* I, *Sca* I, *Sna*B I, and *Taq* I - require unique (**U**) buffers for optimal reaction conditions. The composition of each unique buffer is presented in the Technical Data Sheet downloadable from <http://www.mymetabion.com> and provided with each enzyme.

2) Colors of the table rows correspond with the top colors of the respective buffer and enzyme tubes.

3) 10x reaction buffers should be thawed completely and mixed thoroughly before using.

Identical Buffers of the different most used systems:

mi – Buffer	MBI Fermentas – Buffer *	NEB – Buffer **
Buffer 1	B (blue)	
Buffer 2	G (green)	B 2
Buffer 3	O (orange)	B 3
Buffer 4		
Buffer 5		B 4

* MBI Fermentas Buffer do not contain Dithiothreitol (DTT), but BSA is already included

** NEB has separated Buffer and BSA solutions; for other Buffers/Enzymes, please look up the respective activity in the buffer reference table to NEB

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