



gentleMACS™ Protocol overview

The gentleMACS™ Dissociator allows the fast and gentle dissociation of many tissues. Multiple gentleMACS Protocols and programs are available for the generation of single-cell suspensions from various tissues. Subcellular material, such as total RNA or mRNA, can be isolated from homogenized fresh or frozen tissues.

The gentleMACS Dissociator is equipped with 25 specific and five general programs. The table below summarizes the gentleMACS Protocols and the corresponding specific programs that are currently available; protocols are available for download at www.miltenyibiotec.com/protocols.

gentleMACS Protocol	Tubes	gentleMACS Program
Protocols for preparation of single-cell suspensions		
Preparation of single-cell suspensions from mouse spleen	C	m_spleen_01 (1–2 spleens), or m_spleen_04 (3–6 spleens)
Preparation of single-cell suspensions from mouse spleen with collagenase D treatment	C	m_spleen_02 and m_spleen_03, combined
Preparation of single-cell suspensions from mouse liver with collagenase IV treatment	C	m_liver_01 and m_liver_02, combined
Preparation of single-cell suspensions from mouse neural tissue	C	m_brain_01, m_brain_02, and m_brain_03, combined
Preparation of single-cell suspensions from mouse lung with collagenase D treatment	C	m_lung_01 and m_lung_02, combined
Preparation of single-cell suspensions from mouse heart with collagenase II treatment	C	m_heart_01 and m_heart_02, combined
Preparation of single-cell suspensions from implanted mouse tumors:		
• Tumor-infiltrating lymphocytes (TILs) from B16 melanomas	C	m_impTumor_01
• TILs and tumor cells from B16 melanomas	C	m_impTumor_02
• TILs and tumor cells from CT26 colon carcinomas	C	m_impTumor_02 and m_impTumor_03, combined
• TILs and tumor cells from mPAC pancreatic tumors	C	m_impTumor_04
Preparation of single-cell suspensions from human tumors	C	h_tumor_01, h_tumor_02, and h_tumor_03, combined
Preparation of single-cell suspensions from human and mouse embryoid bodies	M	EB_01 and EB_02, combined
Protocols for homogenization of tissue		
Homogenization of tissue for total RNA isolation	M	RNA_01 for fresh tissue RNA_02 for frozen tissue
Homogenization of tissue for mRNA isolation	M	RNA_01 for fresh tissue RNA_02 for frozen tissue
Homogenization of tissue for protein extraction	M	Protein_01

Recommendations for general gentleMACS Programs

The gentleMACS Programs A, B, C, D, and E are designed as a basis for the user to customize protocols for the generation of single-cell suspensions from tissues that are not listed in the table above. The stringency of the dissociation conditions increases from A to E, i.e., gentleMACS Program A provides relatively mild conditions for the dissociation of soft tissue, whereas program E is suitable for tough tissue.

Note: Very hard material, such as bone should not be processed since it may damage the gentleMACS Tubes.

Applications provided by our customers

Preparation of single-cell suspensions with C Tubes:

- mouse thymus: Program A
- mouse lymph nodes: Program B
- mouse epidermis: Program B

Homogenization of tissues with M Tubes:

- isolation of bacteria from infected mice or determination of viral load: Program RNA_01

Have you discovered a new application for gentleMACS Programs that you would like to share with other scientists? Let us know! Just contact macstec@miltenyibiotec.de.

General information

For general recommendations on sample sizes, please refer to the gentleMACS Tube data sheets. For details on the use of the gentleMACS Dissociator, refer to the gentleMACS Dissociator user manual.

Miltenyi Biotec will continue to provide new, specific gentleMACS Programs and gentleMACS Protocols. Watch out for news at www.gentlemacs.com or www.miltenyibiotec.com/protocols.

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