

Average RNA yields

Typically obtained
from various starting material

Average RNA yields

The following compilation reflects the average yield of total RNA or mRNA from various sources and is intended to help the researcher to estimate the amount of tissue or cells required. Generally, 1–5% of the total RNA is messenger RNA. Please consider that the yield of RNA may vary depending on source, quality, and the treatment of the starting material.

Average total RNA yields

Primary cells (1×10 ⁶ cells)	Total RNA (µg)
Dendritic cells, human	4
Hematopoietic progenitor cells (CD34 ⁺), human	1
Fibroblasts, rat	5
PBMC	8

Cell lines (1×10 ⁶ cells)	Total RNA (µg)
Colon carcinoma cells	30
HEK 293 cells	16
HeLa cells	32
HUV-EC-C	38
THP1 cells	16
U937 cells	12

Tissue (100 mg)	Total RNA (µg)
Heart	100
Kidney	150
Liver	200
Skin	20
Spleen	150
Thymus	150

Average mRNA yields

Depending on cell type, 2–5% of the total RNA represent mRNA. For the preparation of mRNA from the sources listed below µMACS™ mRNA Isolation Kits were used.

Primary cells (1×10 ⁷ cells)	mRNA (µg)
B cells (CD19 ⁺)	0.4
Hematopoietic progenitor cells (CD34 ⁺)	0.5
Monocytes (CD14 ⁺)	1
Myeloid dendritic cells (CD1c/BDCA-1 ⁺)	2.5
Plasmacytoid dendritic cells (BDCA-4 ⁺)	0.7
NK cells (CD3 ⁻ CD56 ⁺)	0.3
NKT cells (CD3 ⁺ CD56 ⁺)	0.6
T cells (CD3 ⁺)	1
T helper cells (CD4 ⁺)	0.6
Cytotoxic T cells (CD8 ⁺)	0.4
Regulatory T cells (CD4 ⁺ CD25 ⁺)	0.3

Cell lines (1×10 ⁷ cells)	mRNA (µg)
1881 (mouse pre-B cell lymphoma)	3.4
BT-474 (human breast ductal carcinoma)	8.8
CHO (chinese hamster ovary cells)	5.5
Jurkat (human T cell leukemia)	3.5
SK-BR-3 (human breast adenocarcinoma)	2.5
THP-1 (human acute monocytic leukemia)	4.9
U-266 (human multiple myeloma)	1.5

Mouse tissue	Amount	mRNA (µg)
Brain	30 mg	1.7
Heart	30 mg	0.8
Kidney	30 mg	3.4
Liver	30 mg	6
Lung	30 mg	0.8
Small intestine	30 mg	1.9
Spleen	15 mg	1.5

Plant tissue	Amount	mRNA (µg)
Arabidopsis, whole plant (2–3 weeks old)	100 mg	5–10 µg
Arabidopsis, leaves	500 mg	3 µg

Unless otherwise specifically identified, all Miltenyi products and services are for research use only and not for diagnostic or therapeutic use. MACS is a registered trademark and µMACS is a trademark of Miltenyi Biotec GmbH. Copyright © 2009 Miltenyi Biotec GmbH. All rights reserved.