

BioWhittaker® X-VIVO™ Media Systems

Lonza's R&D efforts and collaboration with many clinical trials have provided Lonza with the tools and expertise to support the developments in adoptive immunotherapy, cancer therapy, genetic therapy and other cellular therapies. Lonza's philosophy for the development of serum-free formulations for use in cellular therapy is to provide a nutritionally complete and balanced environment for the cells. We have not included any exogenous growth factors, artificial stimulators of cellular proliferation or undefined supplements.

The products are devoid of any protein-kinase C stimulators and are suitable for the investigation of second messenger systems in the activation of human and murine lymphocytes. The formulations are complete and contain pharmaceutical grade human albumin, recombinant human insulin and pasteurized human transferrin. All X-VIVO™ Medium products are manufactured under current GMPs and are listed with the FDA in a product Master File. Permission to cross-reference the Master File may be obtained by contacting the Product Manager.

X-VIVO™ 10 Medium

The X-VIVO™ 10 Medium formulation is designed to support the generation of Lymphokine Activated Killer (LAK) cells in a serum-free environment. The original protocols involved the incubation of patient or normal donor Peripheral Blood Lymphocytes (PBL) at $1.0-3.0 \times 10^6$ cells/ml for a period of 3 days in the presence of 1,000 Cetus units of rIL-2/ml. Optimal LAK cell generation is achieved when peripheral blood lymphocytes are incubated for three to ten days at a density of $1.0-6.0 \times 10^6$ cells/ml in the presence of 100 - 1000 Cetus units of rIL-2. X-VIVO™ 10 Medium is available as a 1X liquid in several convenient configurations.

X-VIVO™ 15 Medium

X-VIVO™ 15 Medium is similar in composition to X-VIVO™ 10 Medium and has been optimized for the proliferation of Tumor Infiltrating Lymphocytes (TIL)

under serum-free conditions. The formulation supports the proliferation of purified CD3+ cells isolated from peripheral blood and human tumors. X-VIVO™ 15 Medium has also been used to support the growth of human monocytes, macrophage cells and cell lines, PBL, granulocytes and natural killer (NK) cells. In addition, X-VIVO™ 15 Medium provides a serum-free environment for the expansion of HUT-78 and related human lymphocytic cell lines.

X-VIVO™ 20 Medium

X-VIVO™ 20 Medium was developed and optimized to support the generation of LAK cells from monocyte-depleted PBL at high density. Initial cell densities between $2.0- 3.0 \times 10^7$ cells/ml were successfully used to generate LAK cells. X-VIVO™ Medium 20 may also be used as a growth medium for PBL and TIL.

Other Applications of X-VIVO™ Products Include:

- Proliferation of PBL
- Proliferation of TIL
- Cryopreservation and transplantation of organs
- Cultivation of human monocytes and macrophages
- Cultivation of stem cells
- Cultivation of dendritic cells

Partial List of Cell Types Grown with X-VIVO™ Medium

- Human and murine Lymphokine Activated Killer (LAK) cells
- Peripheral Blood Lymphocytes
- Human and murine Tumor Infiltrating Lymphocytes (TIL)
- Human T cells
- Human and murine macrophages
- Human and murine hematopoietic stem cells (colony formation and proliferation)
- Cryopreservation of human tissue

- Proliferation of draining lymph node lymphocytes

X-VIVO™ Media References

X-VIVO™ 10 Medium

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X-VIVO™ 15 Medium

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X-VIVO™ 20 Medium

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Storage

2°C to 8°C

Product Use Statement

THESE PRODUCTS ARE FOR RESEARCH USE ONLY. Not approved for human or veterinary use, for application to humans or animals, or for use in clinical or *in vitro* procedures.

Ordering Information

Catalog Number	Description	Size
04-380Q	X-VIVO™ 10 Medium with L-glutamine, gentamicin, and phenol red	1 L
04-743Q	X-VIVO™ 10 Medium with L-glutamine; without gentamicin or phenol red	1 L
BE04-418F <i>(Europe only)</i>	X-VIVO™ 15 Medium with L-glutamine, gentamicin, and phenol red	500 ml
04-418Q	X-VIVO™ 15 Medium with L-glutamine, gentamicin, and phenol red	1 L
04-744Q	X-VIVO™ 15 Medium with L-glutamine; without gentamicin or phenol red	1 L
04-448Q	X-VIVO™ 20 Medium with L-glutamine, gentamicin, and phenol red	1 L

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