



LYMPHOPREP

# BIOLOGICAL SEPARATIONS

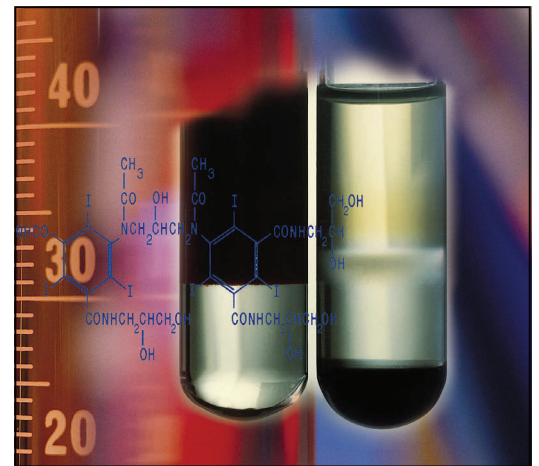
NEWS BULLETIN FOR AXIS-SHIELD DENSITY GRADIENT MEDIA

## Lymphoprep™ Isolation of human mononuclear cells

A simple and effective method for the isolation of mononuclear cells from human blood was reported by Dr. Arne Bøyum in 1968. For more than 35 years a commercial medium known as Lymphoprep™ has been widely used for isolating these cells.

Mononuclear cells (monocytes and lymphocytes) have a lower buoyant density than the erythrocytes and the polymorphonuclear (PMN) leukocytes (granulocytes). The vast majority of mononuclear cells have densities below 1.077 g/ml. These cells can therefore be isolated by centrifugation on an isoosmotic medium with a density of 1.077 g/ml, which allows the erythrocytes and the PMNs to sediment through the medium while retaining the mononuclear cells at the sample/medium interface.

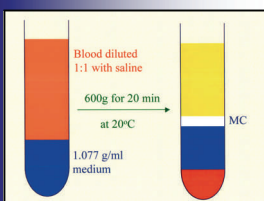
The described method is rapid, simple and reliable and gives excellent results with blood samples from normal individuals and patients.



**To obtain the maximum yield it is important that the blood sample is diluted 1:1 with physiological saline before being applied to the gradient.**

The contamination of erythrocytes in the mononuclear cell suspension is usually between 3- 10% of the total cell number.

Some immature PMNs may band with the lymphocytes during intense immunosuppressive therapy. When heparinised blood is used, it is essential to remove most of the platelets, in order to avoid inhibition in the cytotoxicity test.



**Web:**

[www.axis-shield-density-gradient-media.com](http://www.axis-shield-density-gradient-media.com)

## AXIS-SHIELD

PO Box 6863 Rodelokka

N-0504 Oslo

Norway

Phone: +47 24 05 60 00

Fax: +47 24 05 60 10

Email: [bjh@no.axis-shield.com](mailto:bjh@no.axis-shield.com) or

[john@jgrescon.fsbusiness.co.uk](mailto:john@jgrescon.fsbusiness.co.uk)



**Lymphoprep™** is a ready-made, sterile and endotoxin tested solution with the following specifications:

Sodium diatrizoate: 9.1% (w/v)

Polysaccharide: 5.7% (w/v)

Density:  $1.077 \pm 0.001$  g/ml

Osmolality:  $290 \pm 15$  mOsm

Endotoxins:  $< 1.0$  EU/ml

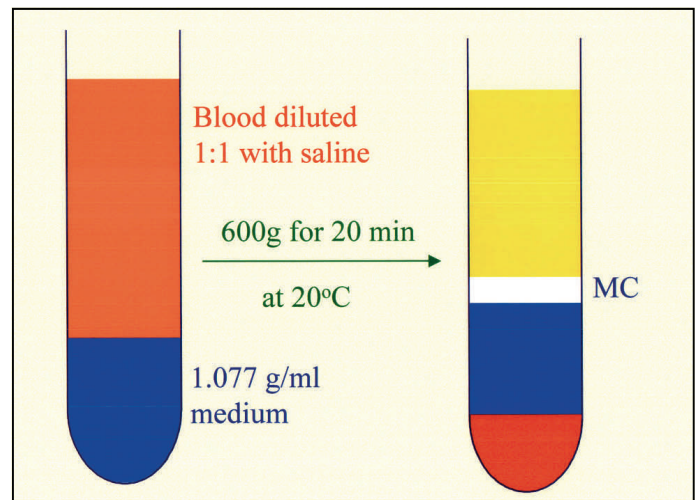
Each batch of Lymphoprep™ is checked on the level of endotoxins using a specific LAL test. Our goal is to produce batches with an endotoxin level lower or equal to 0.13 EU/ml.

For every batch produced a Certificate of Analysis showing the actual values of density, osmolality and endotoxins is made available at [www.axis-shield-density-gradient-media.com](http://www.axis-shield-density-gradient-media.com). We also claim sterility according to Ph.Eur.

**Lymphoprep™** is manufactured, packed and released in compliance with:

1. Current EU guide to Good Manufacturing Practice
2. Fresenius Kabi AS Quality System
3. Fresenius Kabi AS Manufacturing Licence

**Lymphoprep™** has the same specifications as the expensive **PLUS** or **PREMIUM** media from other manufacturers.



**Lymphoprep™** can be used for the preparation of pure lymphocyte suspensions for tissue typing, antilymphocyte sera and immunological research. Thorsby and Brattellie used this technique with only slight modifications in the preparation of pure lymphocyte suspensions for cytotoxicity tests and lymphocyte cultures.

**Lymphoprep™** is supplied as a sterile solution in the following package sizes:

Prod. no. 1114544 1x250ml

Prod. No. 1114545 4x250 ml

Prod. No. 1114547 6x500 ml

Bøyum, A. (1968)

Separation of leucocytes from blood and bone marrow  
*Scand. J. Clin. Lab. Invest.*, **21**, suppl.97