2011
2012

Cell Culture Products Catalog

ViroMed Laboratories
A LabCorp Company

ViroMed Laboratories
2011-2012 Cell Culture Products Catalog

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Price list available upon request

List prices for products are shown in the price list. Please contact ViroMed Account Management at 800-582-0077 or ViroMed_AcctMgmt@LabCorp.com for specific information about pricing.

Routinely Available Cell Cultures **For in vitro diagnostic use.**

Primary Animal Cell Cultures			
Cell Code	**Cell Line Abbreviation**	**Full Description**	**Passage Range**
310	RK	Rabbit kidney, New Zealand White, 7-15 days old	
309	RMK	Rhesus monkey kidney (*Macaca mulatta)* with SV5 & SV40 antisera	
308	RMK	Rhesus monkey kidney (*Macaca mulatta)* without antiserum	
Serially Propagated Cell Cultures			
320	A549	Lung carcinoma, human; L-15 - tubes, vials, MEM - flasks/plates	80-90
323	BGMK	"Buffalo Green" kidney, African green monkey, *Cercopithecus/Chlorocebus aethiops*	100-125
303	HEp-2	Epidermoid carcinoma, larynx, human, HeLa markers; L-15 - tubes, vials, MEM - flasks/plates	375-400
303		2nd seeding - Wed/Thurs ship	375-400
306	McCOY	Mouse fibroblasts	65-75
306		2nd seeding - Wed/Thurs ship	65-75
406	McCOY LIGHTS	Mouse fibroblasts	65-75
406		2nd seeding - Wed/Thurs ship	65-75
302	MRC-5	Lung, diploid, human, fibroblast	21-25
402		2nd seeding - Wed/Thurs ship	21-25
301	SF	Foreskin, diploid, human, fibroblast	5-10
304	Vero	Kidney, African green monkey, *Cercopithecus aethiops*	130-180
311	WI-38	Lung, diploid, human, fibroblast	20-25

Special Order Cell Cultures **For research use only; not for in vitro diagnostic use.**

Serially Propagated Cell Cultures			
332	BS-C-1	Kidney, African green monkey, *Cercopithecus aethiops*	50-75
326	BT	Turbinate cells, bovine, *Bos taurus*	25-55
344	PK (15)	Kidney, porcine, *Sus scrofa*	140-160
348	ST	Testicle, swine, *Sus scrofa*	125-150

Cells are normally shipped Monday for Tuesday delivery except where indicated.

Directions

How to determine catalog number

Step 1 Select a cell line and note the 3-digit cell code.

Step 2 Select an available format and note the format code listed at the top of the page.

Step 3 Replace the -xxx- in the format code with the 3-digit cell code from Step 1.

Example

To order RMK cells in a 25 cm flask, combine cell code 309 with format code 16-xxx-25 to determine the complete catalog number: 16-309-25.

Available Formats							
Tube	Snap-cap Vial	Flasks			Microtiter Plates		
16 x 25mm Code 14-xxx	Code 15-xxx	25cm² Code 16-xxx-25	75cm² Code 16-xxx-75	175cm² Code 16-xxx-175	24-well Code 18-xxx-24	48-well Code 18-xxx-48	96-well Code 18-xxx-96
●	●	●	●		●		●
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Cell Cultures Most Commonly Used for Virus Isolation

	Adenovirus	Coxsackie A	Coxsackie B	Cytomegalovirus	Echovirus	Herpes simplex	Influenza A, B	Measles	Mumps	Parainfluenza	Polio	Rhinovirus	RSV	Varicella zoster	*Chlamydia trachomatis*	*Chlamydia pneumoniae*
Primary Animal Cell Cultures																
Rabbit kidney						•										
Rhesus monkey kidney		•	•		•		•	•	•	•	•					
Serially Propagated Cell Cultures																
A549	•					•								•		
BGMK			•								•				•	
HEp-2	•		•			•					•		•			•
McCoy															•	
MRC-5	•	•		•	•	•					•	•	•	•		
SF	•	•		•	•	•					•			•		
Vero			•			•			•		•					
WI-38	•	•		•	•	•					•	•	•	•		

Cell Cultures for In Vitro Cytotoxicity Testing

The following cell lines are the most commonly used for in vitro cytotoxicity testing:

- **MRC-5** Lung, diploid, human fibroblast
- **WI-38** Lung, diploid, human, fibroblast

For product numbers and prices, please see price list.

Cell Culture Product Information

Cell Culture Formats
ViroMed's cell cultures are available in a variety of formats. The table on pages 2 and 3 shows the formats available within each cell line.

Avalilable fomats:

- Glass screw cap tube: 16 x 125 cm
- Glass shell vial with snap cap, enclosed coverslip: 1 dram
- Polystyrene flask: 25 cm^2, 75 cm^2, and 175 cm^2
- Microtiter plate: 24, 48, and 96 wells per plate

Cell Culture Confluency
Monolayer cell cultures are shipped by ViroMed at or near confluency unless otherwise indicated.

Microtiter Plates
The microtiter plate format can be used for large volume testing as well as for rapid spin-down procedures.

Microtiter plates will arrive from ViroMed with an adhesive label covering the wells to prevent spillage during shipment. Immediately upon receipt, the adhesive labels should be aseptically removed from the microtiter plates, and the plates should be re-covered with the provided plate cover.

Microscopic reading: Once the media has been removed, plates may be stained, inverted, and read with a microscope. The microscope may require a moveable stage to allow the objective to clear the plate. Following are the respective heights of ViroMed's microtiter plates:

24-well	23 mm
48-well	22 mm
96-well	17 mm

Shipping Media and Concentrations
Unless otherwise noted in this catalog, ViroMed cells are routinely planted and fed with minimum essential medium (Eagle) supplemented with heat-inactivated fetal bovine serum, antibiotics, and Hepes buffer. Cell cultures are shipped with adequate medium to maintain the cell monolayer.

Endogenous Simian Viruses
Microorganisms hazardous to humans and animals can be found in cultured primary cells. Simian viruses are endogenous in primary monkey kidney cell cultures. The most common endogenous viruses are SV5 and SV40. Primary monkey cells are available in medium with and without SV5 and SV40 antisera.

Quality Control and Assurance
Every aspect of ViroMed's cell culture production system, including production controls at each step and a quality assurance program, is designed to ensure quality cell lines.

- Suppliers of all biologics and shipping materials used in the preparation of our products must meet our standards and specifications.
- Serially propagated cell lines are routinely tested to be sure they are free from bacterial and fungal contamination. Representative samples of each cell line are tested quarterly for mycoplasma contamination.
- Stock cell cultures are routinely grown and maintained in antibiotic-free media.
- Cell lines are routinely screened and tested to ensure sensitivity in detecting viruses.
- ViroMed manufactures cell cultures under Good Manufacturing Practices (GMP) guidelines.

Care and Maintenance of Cell Cultures

Because cell cultures are perishable, fragile products, proper handling and maintenance are necessary to achieve maximum performance.

Initial Inspection

When cell cultures are received, they should be immediately inspected for the following qualities.

Proper packaging
Medium should be covering the cell monolayer. Tubes (16 x 125 mm) should be received in a slanted position with the white spot facing up. Microtiter plates and vials should be received upright so medium is covering the cell monolayer.

Correct temperature
Cells are shipped in packaging designed to maintain room temperature. Cells may be damaged by temperature extremes.

Confluency of monolayer
Most cells are shipped at or near confluency.

Quality of monolayer
Inspect for presence of debris or rounding of cells.

Absence of contaminants
Medium should be clear, indicating the absence of contaminants.

pH
Medium, as indicated by the phenol red indicator, should be light orange or light pink.

Clients who, after initial inspection, have questions regarding the condition of cell cultures received should contact ViroMed Account Management at 800-582-0077 or ViroMed_AcctMgmt@LabCorp.com.

Routine Care

Upon receipt
Monolayer cell cultures are ready for use as they are received. The medium may be changed if desired, but it is not necessary.

Incubation
Cell cultures require incubation at 35º to 37º C for maximum shelf life. Exposure to fluctuating temperatures for a prolonged period of time may lead to cell damage. If cells are placed in a CO_2 incubator, loosen cap to facilitate gas exchange. Cells grown in L-15 media should be incubated in a non-CO_2 environment with cap tightly closed.

Refeeding
Cell cultures are shipped with fresh medium. They may require refeeding on a weekly basis.

Working With Cell Cultures

Safety
Care should be taken when working with cell cultures to guard against accidental inhalation, ingestion, or inoculation of the cells or their media. Microorganisms hazardous to humans and animals can be found in cultured primary cells, particularly populations of primary monkey kidney cells. As a precaution, a laminar flow biological safety cabinet should be used.

Aseptic technique
It is necessary to follow aseptic technique when working with cell cultures.

Controls
To help assure the accuracy of their testing results, laboratories may wish to establish controls when using a new cell culture lot. Two or 3 uninoculated monolayers from each lot can be selected, incubated, refed, and compared with the cultures that are inoculated with clinical specimens.

Cell culture life spans
Investigators should be mindful that cell cultures have limited life spans and that the maximum shelf life for quality cells varies among cell types.

Indications of cell culture deterioration
Any of the following characteristics may indicate that a cell culture has deteriorated or is unstable:

- pH values outside the acceptable range
- Cell morphology changes (rounding, sloughing, etc)
- Failure to detect viral strains known to replicate within the specific cell type
- Microbial contamination

Disposal
Because cell cultures may contain hazardous microorganisms, they should be disposed of by autoclaving or another state-permitted medical waste treatment technology.

Cell Cultivation

Types of Cell Cultures

Cultivated cells are of two basic categories: primary cultures and cell lines (serially propagated cell cultures). Cell lines are further differentiated as either diploid or heteroploid.

Primary Animal Cell Cultures

Primary cultures are the first in vitro cultivation of cells taken directly from human or animal tissue. These cells have the same karyotype as the original tissue, with the sex chromatin being retained and the chromosome number unchanged.

To produce its primary cultures, ViroMed uses enzymes to separate the cells of the original tissue and "plants" these individual cells in a growth medium to develop the culture for final use by clients.

Serially Propagated Cell Cultures

Diploid cell lines, which are subcultures of a primary culture, have the same chromosomal makeup as the original tissue. Since they are usually derived from normal tissue, diploid cell lines maintain normal properties throughout subsequent cultivations, and the number of their subcultivations is limited. Close records are kept of the subcultivations to ensure that each culture has maximal usefulness and integrity.

Heteroploid cell lines are also subcultures of a primary culture, but, whether they originated from normal or abnormal tissues, transformation has occurred, and the cells are considered abnormal, with the ability to be propagated an indefinite number of times. The wide range of heteroploid cell lines available from ViroMed includes derivations from original tumors of humans and animals and those derived through transformation of diploid cells in vitro.

About Monolayer Cultures

Most cells are "anchorage dependent," requiring a surface on which to grow, and the attachment and subsequent growth of cultivated cells in a chosen vessel produces **monolayer cultures** (one-layer formations of cells on the interior surface).

The two most common monolayer cultivation methods are "stationary" and "roller," each with its own specially designed growing vessels.

With the stationary method, cultures are not agitated during incubation, and the monolayer forms on the (usually) flat bottom surface of the vessel.

The roller method uses slow rotation of the vessel during incubation to develop a monolayer of cells attached to the container's entire inner surface.

A **confluent culture** is the term used to describe a monolayer culture once it has covered the entire available surface within a vessel and the cells have stopped dividing.

Red Blood Cells

- Chicken red blood cells in Alsever's solution
- Guinea pig red blood cells in Alsever's solution
- Swine red blood cells in Alsever's solution
- Turkey red blood cells in Alsever's solution

Other types of red blood cells may be available upon request.

Routinely Available Red Blood Cells	
Code	Media Type
10-202-30	Chicken red blood cells in Alsever's solution (15 mL)
10-200-5	Guinea pig red blood cells in Alsever's solution (5 mL)
10-200-10	Guinea pig red blood cells in Alsever's solution (10 mL)
10-200-20	Guinea pig red blood cells in Alsever's solution (20 mL)
10-201-30	Sheep red blood cells in Alsever's solution (30 mL)
10-207-30	Swine red blood cells in Alsever's solution (30 mL)
10-203-30	Turkey red blood cells in Alsever's solution (30 mL)

Media

Chlamydia Culture Media

- Chlamydia overlay media
- Chlamydia overlay media, vancomycin

Viral Cell Culture Media

There are many options for ordering routinely available media, including serum-free or any percentage of serum and no antibiotics, 1 antibiotic, or any combination of antibiotics.

Media Options
- Eagles minimum essential medium (MEM)
- Leibovitz's (L-15) medium

Serum Options
- Serum-free
- Serum-free with SV5 and SV40 antisera
- 1%-10% heat-inactivated fetal bovine serum

Antibiotic Options
- Antibiotic-free
- Gentamicin
- Fungizone
- Penicillin
- Vancomycin

For more information about these products or to place an order, please contact ViroMed Account Management at 800-582-0077 or ViroMed_AcctMgmt@LabCorp.com.

See price list for order codes and prices.

Routinely Available Media

Prefix/Volume Code	Format Description
10-XXX-50	50 mL of culture media
10-XXX-100	100 mL of culture media
10-XXX-500	500 mL of culture media

Media Additives										
Base Catalog Number	MEM	% FBS	Penicillin 100 units/mL	Gentamicin 10 µg/mL	Vancomycin 10 µg/mL	Fungizone 2.5 µg/mL	Hepes	SV5 & SV40 Antisera	Cycloheximide 2 µg/mL	Other
10-100-	MEM	10%		●		●	10mM		●	4.5 g/L glucose
10-199-	MEM	10%		●		●	20mM		●	4.5 g/L glucose
10-110-	MEM	10%		●	●	●	10mM		●	4.5 g/L glucose
10-120-	MEM	10%	●	●		●	10mM			
10-162-	MEM	10%	●	●		●	25mM			
10-121-	MEM	10%		●		●	10mM			
10-137-	MEM	10%			●		10mM			
10-122-	MEM	5%	●	●		●	10mM			
10-189-	MEM	5%	●	●		●	20mM			
10-193-	L-15	5%	●	●		●	10mM			
10-123-	MEM	5%		●		●	10mM			
10-132-	MEM	5%	●				(None)			
10-124-	MEM	2%	●	●		●	10mM			
10-198-	MEM	2%	●	●		●	20mM			
10-125-	MEM	2%		●		●	10mM			
10-128-	MEM	2%	●	●		●	10mM	SV 5&40		
10-140-	L-15	2%	●	●		●	10mM			
10-141-	L-15	2%		●		●	10mM			
10-118-	MEM	2%			●		20mM			
10-131-	MEM	2%	●				(None)			
10-126-	MEM	(None)	●	●		●	10mM			
10-195-	MEM	(None)	●	●		●	20mM			
10-129-	MEM	(None)		●		●	10mM			
10-127-	MEM	(None)	●	●		●	10mM	SV 5&40		
10-134-	MEM	(None)	●				(None)			
10-117-	MEM	(None)			●		20mM			
10-142-	MEM	(None)					10mM	SV 5&40		
10-511-	MEM	(None)					20mM			
10-159-	MEM	(None)								pH 2-3
10-165-	HANKS balanced salt solution									

Ordering Information

Placing an Order
Telephone, e-mail, and fax orders are invited. Purchase order numbers are required with all orders. Please identify items by using both catalog numbers and product descriptions. Specify both a shipping address and a billing address.

Time Allowances for Orders
Depending on ViroMed's production schedule, routinely available cell cultures may require ordering up to 2 weeks in advance of desired delivery date.

Special order cell cultures may require ordering up to 3 weeks in advance of desired delivery date.

Production Overages
In order to meet clients' unanticipated needs for additional cell cultures, ViroMed routinely manufactures production overages of many of its routinely available cell lines. Depending on availability, delivery of these cell cultures often can be made as soon as next day if desired.

Minimum Order
ViroMed Laboratories will accept orders of any size; however, there is a $25.00 minimum charge on all orders.

Standing Orders
Standing purchase orders can offer convenience and economy. In addition, standing-order clients are given priority for overages. For information about establishing a standing order, please call Account Management.

Canceling or Changing Orders
Cancellation of cell culture orders must be made 2 weeks prior to the scheduled delivery date. When possible, requests for additions to standing orders should be submitted 2 weeks prior to the scheduled delivery date, and delivery will depend on ViroMed's production schedule. Special order cell cultures may require additional time.

Shipping
Routine delivery of cell cultures is scheduled for Tuesday through Friday each week. Shipments are sent over night by the best available transportation. In the case of Monday holidays, shipments are routinely made on Tuesday for Wednesday delivery unless otherwise requested. Clients are notified in advance regarding shipping arrangements for other holidays.

Conditions of Sale (Warranty)
Sales are void of any seller's warranty or representation, implied or expressed, by usage or otherwise. No claims beyond replacement of unacceptable material or credit on purchase price are allowed. All orders are subject to acceptance.

Credit or Replacement
Prior authorization must be obtained from ViroMed for any credit or replacement. Requests for credit or replacement must be made to Account Management within 7 days of receipt of product.

Billing
Packing slips accompany all orders. Invoices are mailed separately following shipment. Payment terms are net 30 days.

Send payments to:
ViroMed - A LabCorp Company
PO Box 12140
Burlington, NC 27216-2140

To place an order or for more information, please call:

ViroMed Account Management
800-582-0077
Fax: 952-563-4101
E-mail: ViroMed_AcctMgmt@LabCorp.com

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