



**PAN**<sup>TM</sup>  
**BIOTECH**

**CYTOGENETICS**  
Your expert around cell culture

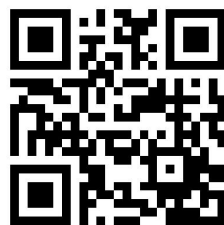
**Prenatal Diagnostic Products**

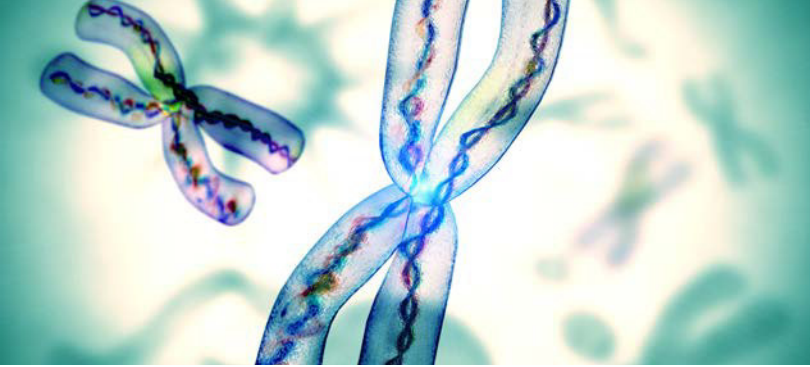
**Postnatal Diagnostic Products**

**Additional Cytogenetic Reagents**



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# INTRODUCTION

## Introduction Cytogenetics

Cytogenetics is a field of study which analyzes the number and structure of human and animal chromosomes. Changes that affect the number and/or structure of the chromosomes can cause problems with growth, development, and how the body functions. The method of cytogenetics is called Karyotyping. It is used to detect chromosomal abnormalities in unborn, in newborn and even adult humans.

The basic principle of the method is the preparation of chromosomes for microscopic observation by arresting cell mitosis at metaphase with colchicine and treating the cells with a hypotonic solution.

In principle, this method enables the identification of any abnormality - excess chromosomes or chromosome deficiency, broken chromosomes, or excess genetic material (as a result of a recombination process).

## Company description

PAN-Biotech is a German-based company manufacturing and distributing sera, media, serum-free systems, biologicals, reagents and other cell culture products. During the last 27 years PAN-Biotech demonstrated its strength with innovative, first-class quality products and excellent service for cell culture around the globe.

**Production takes place in Aidenbach, Bavaria: „Quality - Made in Germany“!**

The product development is based on the needs and requirements of industry and researchers. Individual wishes are always welcome.

Privately owned and managed PAN-Biotech guarantees highest quality at competitive prices.

PAN-Biotech - Success in cell culture.

**PAN-Biotech - besides proven expertise you can expect:**

**High quality**

**Superior service and support**

**Customized production**



# PRENATAL DIAGNOSTICS (AMNIOCENTESIS)

## Prenatal diagnostics

Prenatal diagnostic requires and crucially depends on various invasive and non-invasive techniques in order to examine the fetal nesting and to determine possible fetal genetic abnormalities or malfunctions. Amniocentesis and chorionic biopsy represent essential methods for the invasive diagnostic within the scope of a clinical examination of chromosome abnormalities of a fetus in order to assess the risk of genetic disorders.

## Why Amniocentesis?

Amniocentesis was established in the 1960s and has since then become a common procedure in the cytogenetic routine; cells cultured from these samples supply the source material for prenatal cytogenetic examinations and chromosomal analysis. A successful prenatal diagnostic procedure requires a rapid in vitro expansion of these cells. Amniocentesis is typically carried out in week 16-20 of pregnancy, when 20-40ml of amniotic fluid is drawn for genetic analysis. An important prerequisite for successful amniocyte and chorionic villi cell growth is the use of pre-tested complete media. PAN-Biotech has developed a new ready-to-use medium for rapid culture of amniotic fluid cells.

## Our Product. Proven quality.

Product	Description	Cat. No.	Size
<b>Amniopan III</b>	Complete medium for the cultivation and cytogenetic analysis of human amniotic fluid cells and chorion villi samples - <b>new developed formulation</b>	<b>P04-70103</b>	<b>100 ml</b>

## Advantages:

**high quality** of metaphases

state of the art **in vitro** diagnostic

**reliable** product for **rapid** diagnostic findings

**quality tested** by a leading clinical cytogenetic laboratory



# POSTNATAL DIAGNOSTICS (LYMPHOCYTES & TUMOR CYTOGENETICS)

## Postnatal diagnostics

The cytogenetic analysis of peripheral blood and bone marrow nowadays forms part of the standard tests performed to diagnose malignant hematological diseases. Cytogenetic analysis includes classical chromosome analysis together with fluorescence in situ hybridization (FISH). Cytogenetic analysis makes an important contribution to the confirmation and specification of a tentative diagnosis, prognosis assessment, therapy options and control of disease progression. Moreover, the identification of specific genetic markers related to the malignant cell clone may also be used to monitor therapy. The aim of postnatal diagnosis is to verify the presence of possible chromosomal abnormalities.

## Lymphocytes

Lymphocytes are differentiated cells that usually do not proliferate. For the cultivation of these cells a potent mitogen, such as phytohaemagglutinin is necessary.

## Why Tumor Cytogenetics?

Tumor Cytogenetics deals with the analysis of acquired chromosome abnormalities in cases of hematological neoplasms and solid tumors. Characteristic chromosome abnormalities often occur together with a defined type of tumor and are associated with neoplastic transformation. They are considered to be primary abnormalities. Secondary abnormalities occur with progression of the disease and may contribute to tumor progression as genome instability increases.

## Reliable products for precise and detailed results

Product	Description	Cat. No.	Size
<b>Panserin 701</b>	Serum-free medium for cultivation of lymphocytes	<b>P04-710701</b>	<b>500 ml</b>
		<b>P04-710701M</b>	<b>100 ml</b>
<b>Lymphopan</b>	Ready-to-use for cultivation of lymphocytes	<b>P04-70700</b>	<b>100 ml</b>
<b>Pantum L24</b>	Complete medium for lymphocytes ready-to-use	<b>P04-00024</b>	<b>500 ml</b>
<b>Pantum T64</b>	Complete medium for tumor cells ready-to use	<b>P04-00064</b>	<b>500 ml</b>
<b>Marrowpan</b>	Complete medium for the cultivation and cytogenetic analysis of bone marrow, peripheral blood and hematopoietic cells	<b>P04-70200</b>	<b>100 ml</b>

# ADDITIONAL CYTOGENETIC REAGENTS

## Dulbecco's PBS, without Ca Mg

Cat. No.	Unit Size
P04-36500	500 ml

A general use isotonic saline solution for washing cells and tissue.

## Penicillin/Streptomycin

Cat. No.	Unit Size
P06-07100	100 ml

Penicillin-Streptomycin is used to supplement cell culture media to prevent bacterial contamination. It is recommended for use in cell culture applications at 10 ml/L.

## Collagenase Type II

Cat. No.	Unit Size
LS0004176	1g
LS0004174	100 mg

Prepared to contain a higher clostripain activity. Supplied as a dialyzed, lyophilized powder.

## Gentamycin Sulphate

Cat. No.	Unit Size
P06-03100	100 ml

Gentamicin is an aminoglycoside complex produced by fermentation. Gentamicin sulfate is a broad-spectrum antibiotic used as a selection agent in molecular biology and general cell culture applications.

## HBSS without Phenol Red/ HBSS with Phenol Red

Cat. No.	Unit Size
P04-34500	500 ml
P04-33500	500 ml

Hank's balanced salt solution is used for a variety of cell culture applications: washing cells before dissociation, transporting cells or tissue samples, diluting cells for counting, reagent preparation, for sensitive cell types, some users prefer HBSS w/o phenol red.

## Potassium Chloride, Solution 1 M

Cat. No.	Unit Size
P06-36100	100 ml

A hypotonic solution of potassium chloride in water for use in the preparation of blood lymphocyte chromosomes - the hypotonic treatment causes the cells to swell.

## Sodium Citrate Solution (0.9%)

Cat. No.	Unit Size
P05-39500	500 ml

Sodium Citrate Solution is a hypotonic solution, utilized for the preparation of blood lymphocyte chromosomes.

## Colcemid Solution, 10 µg/ml in DPBS

Cat. No.	Unit Size
P07-91010	10 ml

Colcemid Solution from PAN Biotech is prepared in PBS and it is recommended to use a concentration of 0.1 µg/ml in culture medium.

## Pancoll

Cat. No.	Unit Size
P04-60500	500 ml
P04-60100	100 ml

Pancoll separating solutions from PAN-Biotech contain a polysaccharide with a molecular weight of 400,000 daltons.

## Phytohemagglutinin-L (PHA-L)

Cat. No.	Unit Size
P05-01010	6 x 5 ml

Phytohemagglutinins have several binding sites for carbohydrate derivatives located in the cell membrane. Lymphocytes show an increased mitosis rate under the influence of PHA-L.

## Antibiotic Solution

Cat. No.	Unit Size
P06-07300	100 ml
P06-07305	50 x 5 ml

Penicillin acts by inhibiting bacterial cell-wall synthesis. Streptomycin inhibits prokaryote protein synthesis. Amphotericin B interferes with fungal membrane permeability. Antimicrobial spectrum: includes Gram-negative bacteria, Gram-positive bacteria, fungi and yeasts.

## Trypsin EDTA (0.5%, 0.2%), 10x Con. /


## Trypsin EDTA (0.05%, 0.02%), 1x Con

Cat. No.	Unit Size
P10-024100	100 ml
P10-023100	100 ml

Trypsin solutions are used to release adherent cells from culture surfaces. They are usually composed of variable concentrations of natural trypsin and EDTA. The concentration of trypsin necessary to dislodge cells from the substrate depends on different factors such as cell type or age of the culture.

# CYTOGENETICS OVERVIEW

<b>Prenatal Cytogenetics</b>		
<b>Prenatal Media</b>	<b>Cat. No.</b>	<b>Unit Size</b>
Amniopan III Complete Medium - <b>new developed formulation</b>	P04-70103	100 ml
<b>Postnatal Cytogenetics</b>		
<b>Postnatal Media</b>	<b>Cat. No.</b>	<b>Unit Size</b>
Panserin 701	P04-710701 P04-710701M	500 ml 100 ml
Lymphopan	P04-70700	100 ml
Pantum L24	P04-00024	500 ml
Pantum T64	P04-00064	500 ml
Marrowpan Complete Medium	P04-70200	100 ml
<b>Additional Reagents</b>		
<b>Buffers</b>	<b>Cat. No.</b>	<b>Unit Size</b>
Dulbecco's PBS, without Ca Mg	P04-36500	500 ml
Hanks buffered salt solution (HBSS), without Phenol Red	P04-34500	500 ml
Hanks buffered salt solution (HBSS), with Phenol Red	P04-33500	500 ml
<b>Reagents</b>	<b>Cat. No.</b>	<b>Unit Size</b>
Collagenase Type II	LS0004176 LS0004174	1g 100 mg
Penicillin/Streptomycin Concentration: 10,000 units/ml Penicillin, 10 mg/ml Streptomycin	P06-07100 P06-07050 P06-07005 P06-07001	100 ml 50 ml 50 x 5 ml 50 x 1 ml
Gentamycin Sulphate Concentration 10 mg/ml	P06-03100 P06-03050 P06-03005 P06-03001	100 ml 50 ml 50 x 5 ml 50 x 1 ml
Trypsin EDTA (0.5 %, 0.2 %), 10x Conc. Trypsin EDTA (0.05 %, 0.02 %), 1x Conc.	P10-024100 P10-023100	100 ml 100 ml
Pancoll Blood cell separating solution	P04-60500 P04-60100	500 ml 100 ml
Colcemid Solution, 10 µg/ml in DPBS	P07-91010	10 ml
Potassium Chloride, Solution 1 M	P06-36100	100 ml
Sodium Citrate Solution (0.9%)	P05-39500	500 ml
Phytohemagglutinin-L (PHA-L), Lyophilized	P05-01010	6 x 5 ml
Antibiotic solution Concentration: 10,000 units/ml Penicillin, 10 mg/ml Streptomycin, 25 µg Amphotericin B in 0.85 % saline	P06-07300 P06-07305	100 ml 50 x 5 ml



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