



PNCQ[®]

Programa Nacional
de Controle de Qualidade

Sponsored by the Brazilian Society of Clinical Analyses

PRODUCT CATALOG

2019 EDITION



COMPLETE LINE OF SAMPLES

PRO-EX

External Quality Control

PRO-IN

Internal Quality Control

PAINÉIS

Reagent Validation Panels

The **PNCQ Product Catalog** presents the line of Samples for External and Internal Quality Control for Clinical Laboratories, Molecular Biology, Cytopathology, Blood Banks, Hemotherapy, Toxicology and Occupational Health.

Guidelines necessary for the correct processing of control samples were included, aiming to guarantee quality results of the laboratory tests for your patients.

On pages with **blue** borders, you will find information related to External Quality Control – **PRO-EX**.

On pages with **yellow** borders there is information related to Internal Quality Control – **PRO-IN**.

On pages with **pink** borders, there is information on the Reagent Validation Panels – **PANELS**.

All related tools were also included, available **free** of charge to all the PNCQ Participating Laboratories.



For more information, please contact:
<http://www.pncq.org.br> | pncq@pncq.org.br | 55 (21) 2569-6867

IMPORTANT INFORMATION

- All Participating Laboratories receive a PRO-EX kit monthly, according to the contract, and two bottles of PRO-IN control samples for Biochemistry, on two levels;
- The PRO-EX annual delivery period starts in October and ends in September of the following year;
- In order to receive the Annual Participation Certificate, the laboratory must send the results of at least 11 of the 12 PRO-EX lots to the PNCQ;
- If a problem occurs during the year and the laboratory fails to send the results of 11 lots, you can request a Recovery Kit, which will be evaluated separately. The cost of this kit is a monthly fee of the Basic Program and can only be requested once a year;
- If the laboratory fails to process control samples of any of the contracted Programs in any given month, it must inform the PNCQ for this not to hinder the evaluation;
- When the laboratories' Responsible Technicians are members of the Brazilian Society of Clinical Analyzes – SBAC, or of the Brazilian Association of Biomedicine – ABBM, the laboratory is entitled to a discount of around 33% in the values of the PRO-EX Programs;
- Additional information can be found on the PNCQ website, available in Portuguese, English and Spanish, fully responsive, that is, in a format compatible with computers, tablets and smartphones.

SCIENTIFIC ADVISORY



The technical-scientific team of the National Program of Quality Control is formed by the Superintendent, Administrative Director, Technical Director, Quality Director and Scientific Advisors. These professionals have proven expertise in various specialties of Clinical Analysis, Control, Assurance and Management of Quality.

The PNCQ Scientific Advisors are available to clarify technical doubts, discuss evaluation results and other matters related to the laboratory area.

This service is provided **free of charge** to all members by e-mail, telephone, letter, through social network channels, in person at the PNCQ headquarters, as well as during the Brazilian Congresses of Clinical Analysis and regional events.

Last Updated on: **06/06/2019**

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EXTERNAL QUALITY CONTROL – PRO-EX

GUIDELINES

According to ISO 15.189:2015, the External Quality Control – EQC is defined as the **performance evaluation of analytical systems** through proficiency tests, and the clinical laboratories must perform EQC for **all the exams performed in its routine**. The **PNCQ-PRO-EX's Basic and Advanced External Quality Control Programs** include a wide range of control samples.

For exams not covered by Proficiency Testing Programs, the laboratory shall adopt alternative forms for External Quality Control described in scientific literature. The PNCQ Scientific Advisors are available to clarify any doubts regarding the recommended alternative methods, according to the CLSI GP 29-A2 document.

Because the legislation also dictates that External Quality Control samples should be analyzed **in the same way as patient samples**, the PNCQ recommends that Participating Laboratories, upon receiving the monthly PRO-EX kit, **register the control samples as for a routine patient** in its Laboratory Informatics System – LIS, with identification of the Lot, generating the usual workflow charts, labels, deadlines for releasing results and reports, thus providing the necessary traceability of all the processes related to the control sample, as with patients.

The reconstitution of lyophilized samples should be performed according to the instructions for use and the guidelines from the worksheets available in the open Lot, in the restricted area of the PNCQ website.

The control sample of PRO-EX should be processed **only once**, just as patient samples are processed in the laboratory routine. The evaluation criteria for results, repetition, etc., should be the same as those applied to patient samples.

In this way, the laboratory will get a **genuine evaluation of its performance** and, consequently, will achieve the safety necessary to release the results of all its patients.

According to contractual clauses, the deadline for laboratory to send the **PRO-EX** results to the PNCQ is the 5th day of the month, following the submission of the kit. Naturally, as that date approaches, traffic on our servers increases, and depending on the type of connection in the lab, the sending of results can be hampered. In order to avoid this setback, simply complete the results as soon as they are obtained after the samples have been processed, allowing all data entered and possible changes to be checked, when necessary.

After receiving the PRO-EX monthly evaluation, accessible in the restricted area of the Participating Laboratory through the PNCQ website, the clinical laboratory must, in accordance with current legislation, analyze and record the results of the EQC.

The PNCQ provides, **free of charge, the Trend Chart for the analysis of the Average Deviation – RAD**, assisting the laboratories in the analysis of their performance. Detailed information on how to use this tool can be found in this catalog.

Inadequate results and investigation of causes and actions taken for results in which proficiency has not been obtained should also be recorded. The efficiency of these actions should be verified in the following month's evaluation.

To receive the PRO-EX samples, contact:
pncq@pncq.org.br or 55 (21) 2569-6867

SAMPLES FOR EXTERNAL QUALITY CONTROL – PRO-EX

CLINICAL ANALYSIS

BASIC PROGRAM



BASIC BIOCHEMISTRY - *Presentation: Lyophilized*
Acid Phosphatase, Albumin, Aldolase, Alkaline phosphatase, Amylase, Alpha 1 antitrypsin, Alpha 1 acid glycoprotein, Chlorides, CK, Cholesterol, Cholinesterase, Creatinine, DLH, Direct Bilirubin, Ferritin, Fructosamine, Gamma-glutamyltransferase (GGT), Glucose, Glutamic oxaloacetic transaminase/Aspartate transaminase (SGOT/AST), Glutamate pyruvate transaminase/Alanine transaminase (SGPT/ALT), Ionic Calcium, Iron, LDH, Lactic acid, LDL Cholesterol, Lipase, Lithium, Magnesium, Mucoproteins, Osmolality, Phosphorus, Potassium, Prostate acid phosphatase, Protein, Sodium, TIBC, Total acid phosphatase, Total Bilirubin, Total Calcium, Total Cholesterol, Transferrin, Triglycerides, Urea and Uric acid.



BASIC HEMATOLOGY - *Presentation: Liquid*
Cell Count: Blood Cells, Leukocytes, Platelets, and Reticulocytes;
Determination: Hematocrit and Hemoglobin;
Hematimetric indices: MCHC, MCH, RDW and MCV.

BASIC IMMUNOLOGY - ASO - *Presentation: Lyophilized*

BASIC IMMUNOLOGY - B-HCG - *Presentation: Lyophilized*

BASIC IMMUNOLOGY - CHAGAS - *Presentation: Lyophilized*

BASIC IMMUNOLOGY - HBSAG - *Presentation: Lyophilized*



BASIC IMMUNOLOGY - HIV - Presentation: Lyophilized

BASIC IMMUNOLOGY - SYPHILIS - Presentation: Lyophilized

BASIC IMMUNOLOGY - VDRL - Presentation: Lyophilized

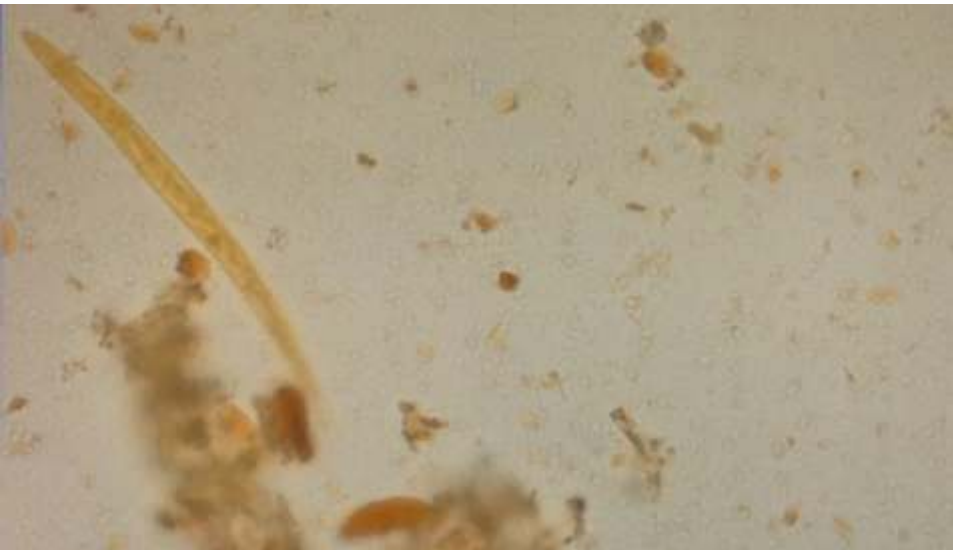
BASIC MICROBIOLOGY

Virtual Bacterioscopy Images: BACILLOSCOPY and GRAM;

Culture, Identification and KB Test - Presentation: Lyophilized

BASIC PARASITOLOGY

Virtual images for the identification of intestinal protozoa and helminths.





BASIC URINALYSIS - *Presentation: Liquid*
Abnormal Element Search;
Sediment;
BHCG.

BASIC URINALYSIS - *Presentation: Virtual*
Virtual images of urinary sediment.

CONTINUING EDUCATION - BASIC EDUCAC
Questionnaire with 10 multiple choice questions about the different specialties of a clinical laboratory.

BASIC SPECTROPHOTOMETRY - *Presentation: Liquid*
Performance evaluation of equipment such as spectrophotometers and photocolorimeters.

VIRTUAL RETICULOCYTES
Virtual images of blood smear preparation, stained by brilliant cresyl blue, in slide.



ADENOVIRUS, RESEARCH – Presentation: Lyophilized



AUTOIMMUNITY - ANF – Presentation: Lyophilized



AUTOIMMUNITY - ANTICARDIOLIPIN IgA/IgG/IgM – Presentation: Lyophilized

AUTOIMMUNITY - ANTI-CCP – Presentation: Lyophilized

AUTOIMMUNITY - ANTI-DNA – Presentation: Lyophilized

AUTOIMMUNITY - ANTIGLIADIN IgA/IgG – Presentation: Lyophilized

AUTOIMMUNITY - ANTI-JO-1 – Presentation: Lyophilized

AUTOIMMUNITY - ANTI-LKM1 – Presentation: Lyophilized

AUTOIMMUNITY - ANTIMITOCHONDRIA – Presentation: Lyophilized

AUTOIMMUNITY - ANTI-RNP and ANTI-SM – Presentation: Lyophilized

AUTOIMMUNITY - ANTI-SCL 70 – Presentation: Lyophilized

AUTOIMMUNITY - ANTI-SSA (Ro) and ANTI-SSB (La) – Presentation: Lyophilized

AUTOIMMUNITY - ANTI-TPO and ANTITHYROGLOBULIN – Presentation: Lyophilized

AUTOIMMUNITY - ASCA IgA/IgG – Presentation: Lyophilized

AUTOIMMUNITY - P-ANCA and C-ANCA – Presentation: Lyophilized



CARDIAC MARKERS - Presentation: Lyophilized

BNP, Total CK, CK-MB Activity, CK-MB Mass, Homocysteine, Myoglobin, Troponin I, and Troponin T.

CAVITAL LIQUIDS - Presentation: Lyophilized

Physical aspects, Lactic acid, Albumin, Amylase, Total Bilirubin, Cholesterol, Creatinine, Density, Glucose, GRAM, LDH, Total Leukometry, Polymorphonuclear and Mononuclear, pH, Proteins, and Triglycerides.

CEREBROSPINAL FLUID – CSF - Presentation: Liquid

Physical aspects, Chlorides, Glucose, GRAM, Total Leucometry, Polymorphonuclear and Mononuclear, Total Proteins, Syphilis, India Ink and Ziehl Neelsen.

CHIKUNGUNYA IgG/IgM – Presentation: Lyophilized

CHLAMYDIA TRACHOMATIS – Presentation: Lyophilized
IgA / IgG / IgM.

COAGULATION - Presentation: Lyophilized

Prothrombin activity (PTA);

INR;

Partial thromboplastin time (PTT);

Fibrinogen.

COAGULATION FACTORS - Presentation: Lyophilized

Antithrombin III, Factor I = Fibrinogen, Factor II = Prothrombin, Factor III = Thromboplastin, Factor V = Labile Factor, Factor VII = Proconvertin, Factor VIII = Antihæmophilic Globulin A, Factor IX = Antihæmophilic Globulin B, Factor X = Stuart Power Factor, Factor XI = Plasma Thromboplastin Antecedent, Factor XII = Hageman Factor, INR, TAP, Protein C, Protein S, and PTT.

COSMETIC MICROBIOLOGY

Aerobic microorganisms, mesophiles, research on fecal coliforms, total coliforms, *Clostridium* sulfite reductant, *Pseudomonas aeruginosa* and *Staphylococcus aureus*.

CRYPTOCOCCUS, SOROLOGY - Presentation: Lyophilized /
Liquid

CYSTATIN C - Presentation: Lyophilized

D-DIMER - Presentation: Lyophilized

DENGUE - Presentation: Lyophilized

IgG and IgM.

DENGUE NS1 - Presentation: Lyophilized

DRUGS IN HAIR - Presentation: Hair

Amphetamine, Methamphetamine, MDMA, MDA, Amfepramone, Femproporex, Mazindol, THC, THC-COOH, Cocaine, Benzoylcegonine, Cocaethylene, Norcocaine, Morphine, Codeine, 6-Acetylmorphine, EME, AEME and Heroin.



DRUGS IN URINE - Presentation: Liquid

Ethanol, Cannabinoids, Amphetamine, Methamphetamine, Cocaine, MDMA, MDA, MDEA, Codeine, Morphine, Phencyclidine, Methadone, Methaqualone, Benzoylcegonine, LSD, Propoxyphene, Norpropoxyphene, Nordiazepam, Secobarbital and α -Hydroxialprazolam.



ERYTHROCYTE SEDIMENTATION RATE (ESR)

- Presentation: Liquid

Stabilized blood for ESR.

FLOW CYTOMETRY - Presentation: Liquid

CD3+; CD3+/CD4+; CD3+/CD8+; CD3-/CD16+
CD56+; CD19+; CD34 and CD45+.

FOODS-MICROBIOLOGY - Presentation: Lyophilized

Main microorganisms analyzed in foods: *Bacillus cereus*, Coliforms at 35°C or total, Coliforms at 45°C or thermotolerant, *Clostridium sulfite reductant* at 46°C, *Salmonella* sp, coagulase-positive *Staphylococcus*, *Listeria monocytogenes*.

GASOMETRY - Presentation: Liquid

Solution for dosages of ionic calcium, chloride, total CO₂, Glucose, HCO₃⁻, Lactate, PCO₂, pH, PO₂, Potassium and Sodium.

GLYCATED HEMOGLOBIN - Presentation: Lyophilized

Specific blood for glycated hemoglobin



GLUCOSE PLT / POCT - Presentation: *Liquid*

Capillary blood glucose

HEMATOLOGY II

Virtual images of blood cells for identification and differential counting.

HEMOGLOBIN ELECTROPHORESIS - Presentation:

Lyophilized

Hemoglobin in stabilizing solution.

HEMOPARASITOLOGY

Virtual blood sample images.

HORMONES - Presentation: *Lyophilized*

ACTH, Aldosterone, Androstenedione, B-HCG, C-Peptide, Calcitonin, Cortisol, DHEA, DHT, Estradiol, Estriol, Ferritin, Free T3, Free T4, Free Testosterone, FSH, GH, IGF-1-Somatomedin C, Insulin, LH, Progesterone, Prolactin, PTH, SDHEA, SHBG, Total T3, Total T4, Total Testosterone, Thyroglobulin and TSH.



IMMUNO-HEMATOLOGY - Presentation: *Liquid/ Lyophilized*

Direct and Indirect Coombs, Rh Factor and Blood Type.

IMMUNOLOGY I - HEPATITIS B and C - Presentation:

Lyophilized

HBsAg, anti-HBe, anti-HBs, total anti-HBc, anti-HBc IgM, HBsAg and HCV.

IMMUNOLOGY I – HIV - Presentation: *Lyophilized*

HIV.

IMMUNOLOGY I – HTLV - Presentation: *Lyophilized*

HTLV.

IMMUNOLOGY I – INFECTIOUS DISEASES - Presentation:

Lyophilized

CMV IgG/IgM, Epstein Barr IgG/IgM, HAV IgG/IgM, Herpes IgG/IgM, Mononucleosis, Rubella IgG/IgM and Toxoplasmosis IgG/IgM.

IMMUNOLOGY I – PLASMA PROTEINS - Presentation:

Lyophilized

C3, C4, IgA, IgG, IgM and IgE.



IMMUNOLOGY I – RHEUMATIC TESTS - Presentation: Lyophilized

C-Reactive Protein and Rheumatoid Factor (LATEX or Waaler Rose).

IMMUNOLOGY – SPECIAL - Presentation: Liquid

Hantavirus, Influenza, Measles, and Rocky Mountain Spotted Fever.

IMMUNOSUPPRESSIVE DRUGS - Presentation: Lyophilized

Tacrolimus, Sirolimus and Ciclosporin.

LEPTOSPIROSIS, RESEARCH - Presentation: Lyophilized

MEDICINES: PURITY - Presentation: solid

MENINGITIS, RESEARCH - Presentation: Lyophilized

MICROALBUMINURIA - Presentation: Lyophilized

MICROBIOLOGY OF MEDICINES - Presentation: Lyophilized

MYCOLOGY - Presentation: Lyophilized

Cultures, slides and EDUCAC.

MYCOLOGY – VIRTUAL (DIRECT MYCOLOGICAL)

Virtual images of tissue and fungal culture.



NEONATAL SCREENING - Presentation: DBS

17-OH Progesterone, L-Phenylalanine, Hemoglobinopathies (Hb A1, Hb A2, Hb C, Hb D and Hb F), T4, Immunoreactive Trypsin, and TSH.

OCCULT BLOOD - Presentation: Pasty

Sample-control representing the biological material.

OCCUPATIONAL HEALTH - View

TOXICOLOGY/OCCUPATIONAL HEALTH.

ORTHOMOLECULAR MEDICINE - Presentation: Lyophilized

Aluminum, Arsenic, Cadmium, Cobalt, Copper, Chrome, Manganese, Mercury, Nickel, Silver, Selenium, and Zinc in serum.



PHYSICAL-CHEMICAL ANALYSIS OF WATER - Presentation:

Liquid

Acidity, Alkalinity, Conductivity, Free Residual Chlorine, Iron, pH, Resistivity, Oxidizable Silicates and Substances.

PRO-BNP - Presentation: *Lyophilized*

PRO-CALCITONIN - Presentation: *Lyophilized*

PROTEIN ELECTROPHORESIS - Presentation: *Lyophilized*

Total Proteins and Electrophoretic Fractionation.

RESEARCH OF CARBAPENEMICOS RESISTANT ENTEROBACTERIA (ERC) - Presentation: *Lyophilized*

RESEARCH OF ENTEROBACTERIA PRODUCING EXTENDED SPECTRUM BETALACTAMASES (ESBL) - Presentation:

Lyophilized

RESEARCH OF GROUP B STREPTOCOCCUS (GBS) - Presentation: *Lyophilized*

RESEARCH OF METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA)

- Presentation: *Lyophilized*

RESEARCH OF VANCOMYCIN RESISTANT ENTEROCOCCUS (VRE) - Presentation: *Lyophilized*

ROTAVÍRUS - Presentation: *Liquid/Lyophilized*

SANITIZING - Presentation: *Liquid*

SPERMOGRAM

Virtual image and video for evaluation of motility, morphology, vitality and overall counting.

STREPTOCOCCUS - Presentation: *Lyophilized*

THERAPEUTIC DRUGS - Presentation: *Lyophilized*

Acetaminophen, Amicacin, Carbamazepine, Digoxin, Folic Acid, Gentamycin, Methotrexate, Phenobarbital, Phenytoin, Pyrimidine, Quinidine, Salicylate, Theophylline, Tobramycin, Valproic Acid, Vancomycin and Vitamin B12.



TOXICOLOGY/OCCUPATIONAL HEALTH

Control Sample I (Synthetic Urine) – Aluminum, Arsenic, Cadmium, Chrome, Cobalt, Copper, Creatinine, Lead, Fluoride, Manganese, Mercury, Nickel, Silver, Selenium and Zinc - *Presentation: Lyophilized*

Control Sample Ia (Synthetic Urine) – Creatinine and Delta-Aminolevulinic Acid - *Presentation: Lyophilized*

Control Sample II (Synthetic Urine) – Creatinine, Hippuric Acid, Mandelic Acid, Methyl Hippuric Acid, N-Methylformamide, Phenol, p-Amino phenol Phenylglyoxylic Acid, 2-Thio-Thiazolidine Acid, Thiocyanate, Total Trichloro compounds Trans Trans-muconic Acid and Trichloroacetic Acid - *Presentation: Lyophilized*

Control Sample III (Synthetic Urine) –Acetone, Creatinine, Ethanol, 2,5-Hexanedione, Methanol, Methyl-Ethyl Ketone and Methyl-Isobutyl Ketone - *Presentation: Liquid*

Control Sample IV (Whole blood) –Cadmium, Lead, Manganese, Mercury, and Selenium - *Presentation: Lyophilized*

Control Sample IVa (Whole Blood) – Carboxyhemoglobin and Methamoglobin - *Presentation: Liquid*

TUMOR MARKERS - *Presentation: Lyophilized*

AFP, Beta-2 Microglobulin, CA 15-3, CA 19-9, CA 125, CEA, Free PSA, Prostatic acid phosphatase and PSA.

URINALYSIS II ADVANCED - *Presentation: Lyophilized*

Amylase, Calcium, Chlorides, Creatinine, Glucose, Magnesium, Phosphorus, Potassium, Total Proteins, Sodium, Urea and Uric Acid.

WATER MICROBIOLOGY - *Presentation: Lyophilized*

Main microorganisms analyzed in water: *Escherichia coli* and Thermotolerant Coliforms, Total Coliforms, Enterococci, *Pseudomonas aeruginosa* and *Staphylococcus aureus*.

WATER MICROBIOLOGY (SUPPLY) - *Presentation: Lyophilized*

Main microorganisms analyzed in water: *Escherichia coli* and Total Coliforms.

WATER MICROBIOLOGY FOR DIALYSIS

Endotoxin Determination.

VISCERAL LEISHMANIASIS - *Presentation: Liquid/ Lyophilized*

VITAMIN D - *Presentation: Lyophilized*

ZIKA VIRUS - *Presentation: Lyophilized*

IgM and IgG



SAMPLES FOR EXTERNAL
QUALITY CONTROL – PRO-EX

MOLECULAR BIOLOGY



INFECTIOUS DISEASES - Presentation: Lyophilized

- Chlamydia trachomatis* qualitative;
- HBV qualitative;
- HBV quantitative;
- HCV qualitative;
- HCV quantitative;
- HCV genotyping;
- HIV qualitative;
- HIV quantitative;
- HPV qualitative;
- HSV qualitative;
- Mycobacterium tuberculosis* / GeneXpert qualitative;
- Zika virus qualitative;
- Zika virus quantitative.



GENETICS - Presentation: special filter paper

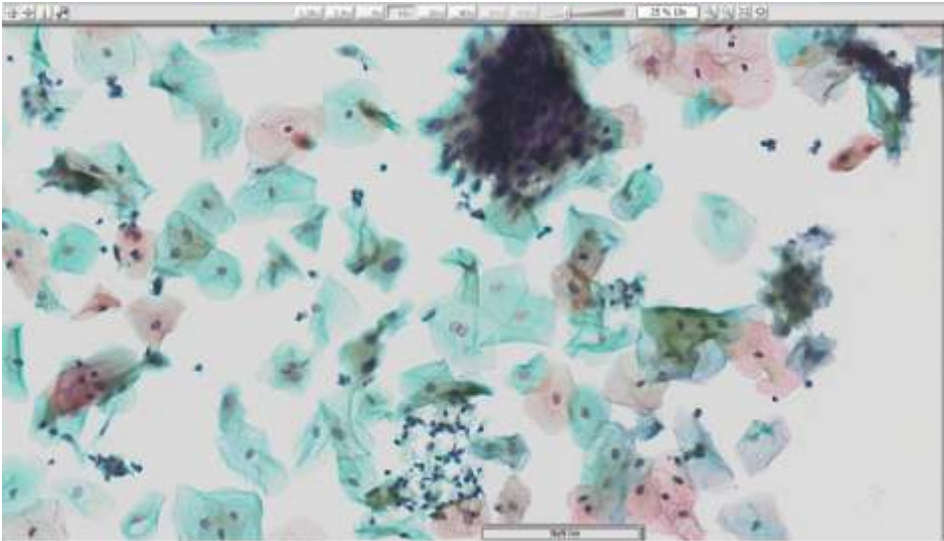
- Forensic;
- Paternity / Maternity.

SAMPLES FOR EXTERNAL QUALITY CONTROL – PRO-EX

CYTOPATHOLOGY

Virtual images of cervical-vaginal secretions and biological fluid smears;

EDUCAC Questionnaire, with 10 questions on the specialty.



SAMPLES FOR EXTERNAL QUALITY CONTROL – PRO-EX

BLOOD BANKS AND HEMOTHERAPY SERVICES



HEMOCOMPONENTS - Presentation: Liquid and Lyophilized

Blood pH, Complete blood count (Hematocrit, Blood cells, Hemoglobin, Leukocytes and Platelets), Hemolysis rate, Factor VIII, Hemoculture, PTT, Residual cells, Residual leucocytes, Residual platelets, Residual protein, and Weighing.



IMMUNO-HEMATOLOGY PROGRAM

- Presentation: Liquid

Blood Group, Rh Factor, Direct and Indirect Coombs (IAS), Irregular Antibody Identification (IAI), Kell Phenotype and Cross-Matching.

NAT PROGRAM* NUCLEIC ACID TEST - Presentation: Lyophilized

HBV, HCV and HIV.

*Mandatory use for the screening of donors in Brazilian Blood Banks.

SOROLOGY - Presentation: Lyophilized

18 serum samples with varying reactivity for Anti-HBc, Anti-HCV, Anti-HIV 1 + 2, Anti-HTLV I/II, Anti-*T. cruzi* (Chagas), HBsAg and Syphilis.

INSTRUCTIONS FOR THE EVALUATION OF VIRTUAL IMAGES

Following the trends of international technological development and with the aim of improving the homogeneity of the PRO-EX Advanced Programs samples, the PNCQ provides some virtual control samples, which the Participating Laboratory accesses in the Restricted Area, from the Open Lot.

Unlike the static images used in atlases and books, which do not resemble the microscopy of laboratory routine, PNCQ's virtual samples allow for the analysis of the images in a way that is similar to the slides of patients' samples.

The images are generated in a high-tech Olympus VS 120 microscope, which allows you to simulate the full-slide view (chariot's movement), use the zoom, simulating the objectives and micrometric focus with the use of the left sidebar.








Olympus VS 120 Microscope

Below are the main commands for performing the evaluation / analysis:



Detailed instructions are in the virtual sample-control area of all Contracted Virtual Programs.

Image navigation

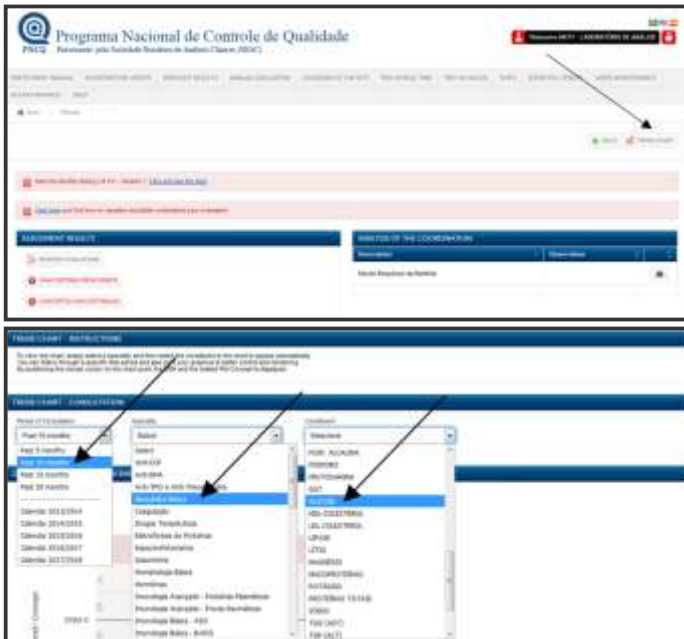
-  Directly zoom for fixed zoom steps. The amplification is shown on the button.
-  Brightness - adjusts the brightness of the image.
-  Hide or show MiniMap. MiniMap displays an overview of the active layer displayed within the image browser. The orange frame corresponds to the actual output displayed in the high magnification image browser. Tab in the orange frame inside the MiniMap to navigate directly inside the high-resolution image layer.
-  Switch to the fullscreen module. Double-click inside the image to return to normal mode. You can also slide to the side to exit full screen mode. In full screen mode all buttons are invisible.
-  Create a screenshot of the image. The screen capture resolution will be magnified for better picture quality.

TREND CHART AND RELATIVE AVERAGE DEVIATION – RAD

The Trend Chart is available, free of charge, to the Participating Laboratory for monitoring and analysis of its performance into the PRO-EX, with the analysis of the Average Deviation (RAD).

There are two ways to access the chart:

From the main screen of the Evaluated Lot, click on the corresponding button, select the consultation period, the specialty, and the constituent:



From the Monthly Evaluation, click on the constituent icon:



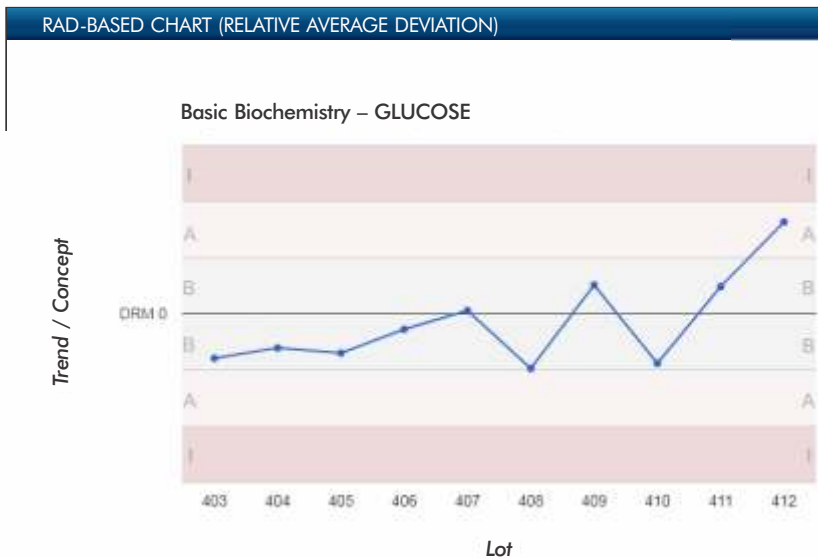

Programa Nacional de Controle de Qualidade
 Departamento de Normas, Métodos de Análises Clínicas (DNMAC)
 Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP)
 Associação Brasileira de Laboratórios Clínicos (ABRLC)




Concept	Name	ID	Determination of Laboratory	Average	SD(%)	Results Distribution / Statistics					
						CV	CV(%)	SD	CV(%)		
CULTRURA	COLIFORMES TOTAIS	mg/l	23	mg/l	2.4628	18.2001	0.2384	14.9	2314	2475	0
				AI Internal Methods	2.7455		0.2011	15.4	3687	3225	
				AI Automated Analyzers	2.6827		0.1980	8.9	430	482	
				AI Data Chemistry Analyzers	2.7549		0.1889	3.9	103	104	
FOF. ALCOOLICA	FERMENTAÇÃO POR FER. (FOF) (100% ALCOOL)	%	92	mg/l	114.6162	28.2219	24.2882	21.2	2289	2289	0
				AI Internal Methods	128.7718		44.2914	36.4	2227	2889	
				AI Automated Analyzers	121.3228		41.3448	34.4	111	107	
				AI Data Chemistry Analyzers	123.6339		7.1713	5.8	181	112	
FOFERO	FIF	mg/l	3,2	mg/l	3.7814	18.2884	0.6490	17.4	1961	1987	0
				AI Internal Methods	3.7299		3.7727	10.4	1920	2040	
				AI Automated Analyzers	3.7884		0.2986	8.1	139	152	
				AI Data Chemistry Analyzers	3.2722		0.2128	8.8	14	126	
GLUCOSE	GLUCOSE ORGÂNICO	mg/dl	101	mg/dl	178.1615	12.2462	12.8939	7.2	3736	3769	0
				AI Internal Methods	178.1614		12.7912	7.1	3818	4013	
				AI Automated Analyzers	178.6478		0.8083	3.1	454	495	
				AI Data Chemistry Analyzers	183.6887		3.2876	3.1	100	113	
HDL-COLESTEROL	COLESTEROL HDL (HDL-C)	mg/dl	31	mg/dl	35.1747	6.8838	4.2694	12.4	3495	3469	0
				AI Internal Methods	33.1791		4.0337	12.4	3324	3364	
				AI Automated Analyzers	33.3845		3.3257	14.2	495	515	
				AI Data Chemistry Analyzers	32.7876		0.8027	4.3	99	154	
PROTEÍNAS TOTAIS	BUNIFETO	g/dl	4	g/dl	4.6791	18.4843	0.4468	9.6	3719	3769	1
				AI Internal Methods	4.6252		0.2362	5.1	2122	2962	
				AI Automated Analyzers	4.6992		0.1828	4.1	342	385	
				AI Data Chemistry Analyzers	4.7549		0.1347	2.9	100	109	
TGO (AST)	BIOQUÍMICO	IU	23	mg/dl	37.3982	28.8827	0.6190	17.6	468	523	1
				AI Internal Methods	36.7388		1.0623	2.9	100	100	
				AI Automated Analyzers	33.8238		1.0623	3.1	100	100	
				AI Data Chemistry Analyzers	33.2338		1.0623	3.1	100	100	
TGP (ALT)	BIOQUÍMICO	IU	97	mg/dl	66.3463	28.2479	7.2881	10.4	3021	3221	1
				AI Internal Methods	77.4511						
				AI Automated Analyzers	82.1776						
				AI Data Chemistry Analyzers	107.8828						

GLUCOSE 

In both ways, the chart will appear automatically. By positioning the cursor over the lot point, the RAD and the concept will be shown:



In this way, it is possible to monitor the laboratory's performance in each analyte, possible trends, loss of precision and accuracy.

It also allows the printing of the graphics with the respective RAD values and concepts.

SCHEDULE AND PERIODICITY OF PRO-EX KITS DELIVERY

PRO-EX sample kits are sent by the PNCQ to over 5,200 Associates, on Monday and Tuesday of the first or second week of each month, according to previous programming.

If the laboratory does not receive the kit within 72 hours after the day of shipment, it should contact the PNCQ for the necessary measures.

The calendar with the dates and Programs can be accessed in the Restricted Area of the Participating Laboratory.



The screenshot shows the PNCQ website interface. At the top, there is a logo for 'Programa Nacional de Controle de Qualidade' and a navigation menu. Below the menu, there is a 'REVIEWS' section with a table of kit delivery dates and statuses. An arrow points to the 'REVIEWS' section.

Round	Reference date	Status
0423	Jan/2018	Open
0412	Dec/2018	Completed
0411	Nov/2018	Completed
0410	Oct/2018	Completed
0409	Sep/2018	Completed

You can check the dates of each PRO-EX kits batch on the calendar:

		NATIONAL PROGRAM OF QUALITY CONTROL											Revision: 32.0 Year: 2017/2018	
		The PNCQ Pro-Ex Delivery Schedule											Page: 1/2	
PRO-EX		398	399	400	401	402	403	404	405	406	407	408	409	
SHIPMENT	Month	Oct/17	Nov/17	Dec/17	Jan/18	Feb/18	Mar/18	Apr/18	May/18	Jun/18	Jul/18	Aug/18	Sep/18	
	Date	10/03	11/07	12/05	01/09	02/06	03/06	04/03	05/08	06/05	07/03	08/07	09/04	
Programs														
•Basics:														
Biochemistry		●	●	●	●	●	●	●	●	●	●	●	●	
EDUCAC		●	●	●	●	●	●	●	●	●	●	●	●	
Spectrophotometry		●	●	●	●	●	●	●	●	●	●	●	●	
Hematology		●	●	●	●	●	●	●	●	●	●	●	●	
Immunology		●	●	●	●	●	●	●	●	●	●	●	●	
Microbiology I + Culture and identification		●	●	●	●	●	●	●	●	●	●	●	●	
Microbiologia II - Bacterioscopy: BAAR staining (ZIEHL) **			●						●					
Microbiology II - Bacterioscopy: GRAM staining **						●						●		
Parasitology *		●	●	●	●	●	●	●	●	●	●	●	●	
Reticulocytes *		●	●	●	●	●	●	●	●	●	●	●	●	
Hematologic Screening		●	●	●	●	●	●	●	●	●	●	●	●	
Urinalysis		●	●	●	●	●	●	●	●	●	●	●	●	
•Advanced:														
Adenovirus		●			●			●			●			
Food / Microbiology			●			●			●			●		
Physical-Chemical Analysis of Water			●			●			●			●		
Autoimmunity				●			●			●			●	
Chikungunya IgG/IgM			●			●			●			●		
Cystatin C		●			●			●			●			
Cytopathology / Educac			●			●			●			●		
Flow Cytometry				●			●			●			●	
Coagulation				●			●			●			●	
Cryptococcus		●			●			●			●			
D-Dimer				●			●			●			●	
Dengue				●			●			●			●	
Dengue Ns1		●			●			●			●			
Drugs		●			●			●			●			
Drugs in Hair			●			●			●			●		

Every month, the Basic Program is sent to all Associates.

In addition, the laboratory receives the Advanced Programs contracted, in the following periodicities: Hematology II - monthly (12 Kits per year); Immunology I - Infectious Diseases: bimonthly (6 kits per year); all others - quarterly (4 kits per year).



PNCQ APP

facilitates acquisition of control samples for laboratories

Always looking for innovation, PNCQ invests in an application that can be used on the computer, tablet or smartphone: the platform APP PNCQ*.

The PNCQ APP enables you to generate and track orders with 100% traceability, simplifies the laboratories' experience in all customer service operations, with real-time information available anywhere.

You can consult both the physical catalog of PNCQ products and use our APP to facilitate your order of SAMPLES CONTROL for internal quality control.

* Available for Android and IOS.



 **PNCQ**[®]
Programa Nacional
de Controle de Qualidade

Patrocinado pela Sociedade Brasileira de Análises Clínicas

INTERNAL QUALITY CONTROL – PRO-IN

GUIDELINES

According to ISO 15.189:2015, the Internal Quality Control (IQC) is defined as the set of procedures conducted in association with the patients' tests, to assess whether the analytical system is operating within the predefined limits.

The clinical laboratory should use commercial control samples, regulated by ANVISA/MH, and when these are not available in the market, alternative forms described in the literature may be used, as long as they allow the evaluation of the analytical system accuracy. The PNCQ offers a wide range of Samples for Internal Quality Control – PRO-IN.

The PNCQ Scientific Advisors are available to clarify any doubts regarding the recommended alternative methods, according to the CLSI GP 29-A2 document.

The legislation determines that the Internal Quality Control samples should be analyzed in the same way as patient samples, and also that the release or rejection of the routine results can only be done after the results evaluation of the IQC samples. In this way, the PNCQ directs laboratories to process the control samples at the beginning of the routine, always following the manufacturers' instructions and, depending on the daily volume, also during the day.

The quantity of control samples, as well as the frequency and levels indicated to be used in the laboratory routine are always determined in the manufacturers' instructions for use.

It is important that the Participating Laboratory makes a prediction on the number of samples that will be used, preferably annually, which will make it possible to use the same lot for a long period of time.

PRO-IN control samples can be purchased in a minimum quantity of 12 bottles of the same or different samples, reducing the cost of shipping. The cost of these control samples can be split in up to 12 payments and included in the members' monthly payment slip, without interest. Only shipping costs will be included in the first slip.

The Instructions for use (leaflet) of the PRO-IN samples can be accessed from the QR Code on the bottle label, from the PNCQ website, or in the restricted area.

The clinical laboratory should monitor its processes by analyzing the internal control samples, recording the results and defining the acceptance and rejection criteria, by type of analyte and methodology used.

The results evaluation of the control samples should be established by the laboratory, with the acceptance criterion being established in a maximum of 2 standard deviations (SD) in relation to the mean. In addition, the laboratory should post the results on the Levey Jennings Chart to assess the performance against accuracy, precision and trends.

The PNCQ provides the PRO-IN in real time, free of charge, assisting the laboratories in the analysis of their performance. The detailed information for using this tool can be found in this catalog.

To receive the PRO-IN samples, contact:
pncq@pncq.org.br or 55 (21) 2569-6867

SAMPLES FOR INTERNAL QUALITY CONTROL – PRO-IN

ANTI-HAV IgG/IgM

Code: HAVM

Presentation: Lyophilized (0.5 mL)

Level: Reagent and Non-Reagent

ANTI-HBc – Total/IgM

Code: AHBC

Presentation: Lyophilized (0.5 mL)

Level: Reagent and Non-Reagent

ANTI-HBe

Code: AHBE

Presentation: Lyophilized (2 mL)

Level: Reagent and Non-Reagent

ANTI-HBs

Code: AHBS

Presentation: Lyophilized (2 mL)

Level: Reagent and Non-Reagent

ANTI-HCV

Code: AHCV

Presentation: Lyophilized (2 mL)

Level: Reagent and Non-Reagent

ANTI-HIV

Code: HIV

Presentation: Lyophilized (0.5 mL)

Level: Reagent and Non-Reagent

ANTI-HTLV

Code: HTLV

Presentation: Lyophilized (1.5 mL)

Level: Reagent and Non-Reagent

ANTISTREPTOLYSIN O – ASO

Code: ASO

Presentation: Lyophilized (0.5 mL)

Level: Reagent and Non-Reagent

AUTOIMMUNITY - ANF

Code: AIMU

Presentation: Lyophilized (0.2 mL)

Level: Variable standards



AUTOIMMUNITY – ANTI-CARDIOLIPINA

IgA/IgG/IgM

Presentation: Lyophilized (0.3 mL)

Level: Reagent and Non-Reagent

AUTOIMMUNITY - ANTI-CCP

Presentation: Lyophilized (0.3 mL)

Level: Reagent and Non-Reagent

AAUTOIMMUNITY - ANTI-DNA

Presentation: Lyophilized (0.2 mL)

Level: Reagent and Non-Reagent

AUTOIMMUNITY – ANTI-GLIADINE IgA/IgG

Presentation: Lyophilized (0.3 mL)

Level: Reagent and Non-Reagent

AUTOIMMUNITY - ANTI-LKM1

Presentation: Lyophilized (0.2 mL)

Level: Reagent and Non-Reagent

AUTOIMMUNITY – ANTI-MITOCHONDRIA

Presentation: Lyophilized (0.2 mL)

Level: Reagent and Non-Reagent

AUTOIMMUNITY - ANTI-JO1

Presentation: Lyophilized (0.2 mL)

Level: Reagent and Non-Reagent

AUTOIMMUNITY - ANTI-RNP and ANTI-SM

Presentation: Lyophilized (0.3 mL)

Level: Reagent and Non-Reagent

AUTOIMMUNITY – ANTI-SCL 70

Presentation: Lyophilized (0.2 mL)

Level: Reagent and Non-Reagent

AUTOIMMUNITY - ANTI-SSA (Ro) and ANTI-SSB (La)

Presentation: Lyophilized (0.3 mL)

Level: Reagent and Non-Reagent

AUTOIMMUNITY - ANTI-TPO and

ANTITHYROGLOBULINA

Code: AIMU

Presentation: Lyophilized (0.5 mL)

Level: 1, 2 and 3

AUTOIMMUNITY - ASCA IgA/IgG

Presentation: Lyophilized (0.3 mL)

Level: Reagent and Non-Reagent

AUTOIMMUNITY - P-ANCA and C-ANCA

Presentation: Lyophilized (0.3 mL)

Level: Reagent and Non-Reagent

BACILLOSCOPY SLIDES

Code: BAAR

Presentation: Smear in slides (1 g)





BIOCHEMISTRY

Code: BIOQ

Presentation: Lyophilized (5 and 10 mL)

Level: 1 and 2 | Normal and High

Lactic acid, uric acid, albumin, aldolase, alpha 1 antitrypsin, alpha 1 acid glycoprotein, amylase, Direct Bilirubin, Total Bilirubin, Ionic Calcium, Chlorides, Cholinesterase, Creatinine, CK, DLH, Ferritin, Iron, Total acid phosphatase, Alkaline phosphatase, fructosamine, gamma-glutamyltransferase (GGT), glucose, HDL cholesterol, LDL cholesterol, lipase, Lithium, Magnesium, Mucoproteins, Osmolality, Phosphorus, Potassium, Total Calcium, Total Cholesterol, Total Protein, Sodium, glutamic oxalacetic Transaminase / Aspartate transaminase (TGO / AST), Glutamate-pyruvate transaminase / Alanine transaminase (TGP / ALT), Transferrin, TIBC, Triglycerides and Urea.

BLOOD GROUP AND RH FACTOR

Code: IMUH

Presentation: Liquid (4 mL) Red blood cells suspension

CARDIAC MARKERS

Code: MCAR

Presentation: Lyophilized (1 mL)

Level: 1 and 2

Total CK, CK-MB Activity, CK-MB Mass, Homocysteine, Myoglobin, Troponin I and Troponin T.

CEREBROSPINAL FLUID (CSF)

Code: LCRA

Presentation: Liquid (4 mL)

Level: Variable

CHAGAS

Code: CHAG

Presentation: Lyophilized (0.5 mL)

Level: Reagent and Non-Reagent

CHIKUNGUNYA

Code: CHIKU

Presentation: Lyophilized (0.3 mL)

Level: Reagent and Non-Reagent

CYSTATIN C

Code: CISTC

Presentation: Lyophilized (0.5 mL)

Level: 1 and 2

CMV-IgG/IgM

Code: CITOMV

Presentation: Lyophilized (0.5 mL)

Level: Reagent and Non-Reagent





COAGULATION FACTORS

Code: FCOA

Presentation: Lyophilized (1 mL)

Level: Normal

Antithrombin III, Factor I = Fibrinogen, Factor II = Prothrombin, Factor III = thromboplastin, Factor V = Labile Factor, Factor VII = Proconvertin, Factor VIII = Antihæmophilic Globulin A, Factor IX = Antihæmophilic Globulin B, Factor X = Stuart Power Factor, Factor XI = Plasma Thromboplastin Antecedent, Factor XII = Hageman Factor, INR, Protein C and Protein S.



COAGULOGRAM

Code: COAG

Presentation: Lyophilized (1 mL)

Level: Normal and High

COOMBS – DIRECT

Code: IMUH

Presentation: Red blood cells suspension (4 mL)

Level: Non-Reagent

COOMBS – INDIRECT

Code: IMUH

Presentation: Liquid-serum (4 mL)

Level: Reagent and Non-Reagent



CO-OXIMETRIA

Code: COOX

Presentation: Liquid (2 mL)

Level: 1, 2 and 3

C-REACTIVE PROTEINE - CRP

Code: PROTCR

Presentation: Lyophilized (0.5 mL)

Nível: 1 and 2

D-DIMER

Code: DDIM

Presentation: Lyophilized (1 mL)

Level: 1, 2 and 3

DENGUE -IgG/IgM

Code: DENG

Presentation: Lyophilized (0.6 mL)

Level: Reagent and Non-Reagent IgG and IgM.



DENGUE NS1

Code: NS1

Presentation: Lyophilized (0.15 mL)

Level: Reagent and Non-Reagent



DRUGS IN HAIR

Code: DGCAB

Presentation: Solid (100 mg)

Level: Variable

Amphetamine, BEG, Codeine, Femproporex, MDA, MDEA, MDMA, Methadone, Methamphetamine, Morphine, THC-COOH.

DRUGS IN URINE

Code: DGAB

Presentation: Liquid (2.5 mL)

Level: 1, 2 and 3

GASOMETRY

Code: GASO

Presentation: liquid (2 mL)

Level: 1, 2 and 3

HCO_3^- , Ca^{++} , Cl^- , CO_2 Total, Glucose, K^+ , Lactate, Na^+ , pCO_2 , pH , pO_2 .

GLUCOSE POCT (POINT-OF-CARE TESTING)

Code: CIGPO

Presentation: Liquid (1 mL)

Level: 1, 2 and 3

GLYCATED HEMOGLOBIN

Code: HGLI

Presentation: Lyophilized (0.5 and 1 mL)

Level: Normal and High

GRAM SLIDES

Code: GRAM

Presentation: Smear in slides (1 g)

HBeAg

Code: HBEG

Presentation: Lyophilized (2 mL)

Level: Reagent and Non-Reagent

HBsAg

Code: HBSAG

Presentation: Lyophilized (2 mL)

Level: Reagent and Non-Reagent

HCG (B-HCG)

Code: BHCG

Presentation: Lyophilized (0.5 mL)

Level: Reagent and Non-Reagent

HEMATOLOGY (Hemoglobin, Leukocytes and Platelets)

Code: CIHEM

Presentation: Lyophilized (1.5 mL)

Level: 1 and 2



HEMOGLOBIN ELECTROPHORESIS

Code: EHB

Presentation: Lyophilized (1 mL)

Level: Variable

HEMOGLOBIN – HEMOCUE

Code: HCUE

Presentation: Liquid (1 and 2 mL)

Level: 1, 2 and 3

HORMONES

Code: HORM

Presentation: Lyophilized (5 mL)

Level: 1 and 2

ACTH, Aldosterone, B-HCG, Calcitonin, Cortisol, Estradiol, Estrinol, Ferritin, FSH, Insulin, LH, Progesterone, Prolactin, PTH, Free T3, Total T3, Free T4, Total T4, Testosterone, Free Testosterone, TSH, DHEA, DHT, Estrone, IGF-1, Somatomedin C, SDHEA, SHBG and C-Peptide.

IMMUNOHEMATOLOGY

Code: IMUH

Presentation: Liquid (4 mL)

Direct Coombs, Indirect Coombs, Blood Group and Rh Factor.

IMMUNOSUPPRESSIVE DRUGS

Code: IMSUP

Presentation: Lyophilized (2 mL)

Level: 1, 2 and 3

Tacrolimus, Sirolimus and Ciclosporin.

INFLUENZA H1N1

Code: H1N1

Presentation: Lyophilized (0.5 mL)

Level: Reagent and Non-Reagent

LEPTOSPIROSIS

Code: LEPT

Presentation: Lyophilized (0.15 mL)

Level: Reagent and Non-Reagent

MOLECULAR BIOLOGY

Codes: BMCT - Chlamydia (0.5 mL)

BMHBV - HBV (1.5 mL)

BMHCV - HCV (1.5 mL)

BMHIV - HIV (1.5 mL)

BMHPV - HPV (0.5 mL)

BMHSV - HSV (0.5 mL)

BMTB - TUBERCULOSIS (0.5 mL)

ZIKA - Zika Virus (0.75 mL)

Presentation: Lyophilized

Level: Reagent and Non-Reagent



MICROALBUMINURIA

Code: MALA

Presentation: Lyophilized (1 mL)

Level: 1, 2 and 3

MICROBIOLOGY

Code: MICB

Presentation: Lyophilized (1 mL)

Strains of Various ATCC Bacteria - Gram - Negative Bacilli and Gram-positive Cocci.

NUCLEIC ACID TEST (NAT)-HBV

Code: BMHBV

Presentation: Lyophilized (1.5 mL)

Level: Variable

NUCLEIC ACID TEST (NAT)-HCV

Code: BMHCV

Presentation: Lyophilized (1.5 mL)

Level: Variable

NUCLEIC ACID TEST (NAT)-HIV

Code: BMHIV

Presentation: Lyophilized (1.5 mL)

Level: Variable

OCCULT BLOOD

Code: SGOC

Presentation: Pasty (2 g)

Level: Negative and Positive

ORTHOMOLECULAR MEDICINE

Code: MEDT

Presentation: Serum Lyophilized (3 mL)

Level: 1 and 2

Aluminum, Arsenic, Cadmium, Cobalt, Copper, Chrome, Manganese, Mercury, Nickel, Silver, Selenium, and Zinc.

PROTEIN ELECTROPHORESIS

Code: EPTN

Presentation: Lyophilized (5 and 10 mL)

Level: Variable

Total Proteins, Albumin, Alpha 1 Globulin, Alpha 2 Globulin, Beta Globulin, and Gamma Globulin.

PTH

Code: HORM

Presentation: Lyophilized (0.5 mL)

Level: 1, 2 and 3

RHEUMATOID FACTOR

Code: FAREU

Presentation: Lyophilized (0.5 mL)

Level: 1 and 2





ROTAVIRUS, RESEARCH

Code: ROTA

Presentation: Lyophilized (0.5 mL) and Liquid (0.3 mL)

Level: Reagent and Non-Reagent

RUBELLA - IgG/IgM

Code: RUBE

Presentation: Lyophilized (0.3 mL)

Level: Reagent and Non-Reagent

SPECTROPHOTOMETRY

Code: ESPB

Presentation: Liquid (4 mL)

Performance evaluation of spectrophotometers and photocolorimeters.

SYPHILIS – TREPONEMIC

Code: STRE

Presentation: Lyophilized (0.5 mL)

Level: Reagent and Non-Reagent

SYPHILIS – VDRL

Code: VDRL

Presentation: Lyophilized (0.5 mL)

Level: Reagent and Non-Reagent

SOROLOGY FOR BLOOD BANK

Presentation: Lyophilized

MR01 - HIV (5 mL)

MR02 - Chagas (5 mL)

MR03 - Syphilis (2 mL)

MR04 - HTLV (5 mL)

MR05 - HCV (5 mL)

MR06 - HBsAg / Anti-HBc (5 mL)

MNR - Non-Reagent (5 mL)

Specific Samples for Architect / Roche / Liaison XL:

AMR01 - Anti-HIV (5 mL)

AMR02 - Chagas (5 mL)

AMR03 - Syphilis (5 mL)

AMR04 - HTLV (5 mL)

AMR05 - HCV (5 mL)

AMR06 - HBsAg (5 mL)

AMR07 - Anti-HBc (5 mL)



THERAPEUTIC DRUGS

Code: DTER

Presentation: Lyophilized (2 mL)

Level: 1, 2 and 3

Acetaminophen, Folic Acid, Valproic Acid, Carbamazepine, Digoxin, Phenytoin, Phenobarbital, Pyrimidine, Quinidine, Salicylate, Theophylline and Vitamin B12.



TOXICOLOGY/OCCUPATIONAL HEALTH

Code: MEDT

METALS IN URINE

Presentation: Lyophilized (10 mL)

Level: 1, 2 and 3

Creatinine, Aluminum, Arsenic, Cadmium, Lead, Cobalt, Copper, Chrome, Fluoride, Manganese, Mercury, Nickel, Silver, Selenium and Zinc.



INORGANIC COMPOUNDS IN URINE

Presentation: Lyophilized (2 mL)

Level: 1, 2 and 3

Creatinine and delta-aminolevulinic acid



ORGANIC COMPOUNDS IN URINE

Presentation: Lyophilized (10 mL)

Level: 1, 2 and 3

2-thiothiazolidine acid, Phenylglyoxylic Acid, Hippuric Acid, Mandelic Acid, Methyl Hippuric Acid, Trans Trans-muconic Acid (TTMA), Trichloroacetic Acid, Creatinine, Phenol, N-Methylformamide, p-Aminophenol, Thiocyanate, and Total Trichloro-Compounds

VOLATILES IN URINE

Presentation: Liquid (4 mL)

Level: 1, 2 and 3

Ethanol, Methanol, Acetone, Creatinine, 2,5 -Hexanedione, Methyl Isobutyl Ketone, and Methyl Ethyl Ketone

METALS IN TOTAL BLOOD

Presentation: Lyophilized (5 mL)

Level: 1, 2 and 3

Cadmium, Lead, Manganese, Mercury and Selenium

CARBOXYHEMOGLOBIN AND METAHEMOGLOBIN IN TOTAL BLOOD

Presentation: Liquid (1.5 mL)

Level: 1, 2 and 3

Carboxyhemoglobin and Metahemoglobin

TOXOPLASMOSIS-IgG/IgM

Code: TOXOM

Presentation: Lyophilized (0.5 mL)

Level: Reagent and Non-Reagent



TUMOR MARKERS

Code: MTUM

Presentation: Lyophilized (2 mL)

Level: 1 and 2

AFP, Beta-2 Microglobulin, CA 15-3, CA 19-9, CA 125, CEA, Prostatic acid phosphatase, PSA, and free PSA.



URINALYSIS - BIOCHEMICAL ANALYSIS

Code: UR1A

Presentation: Lyophilized (5 mL)

Level: 1 and 2

Uric acid, Amylase, Calcium, Chloride, Creatine, Phosphorus, Glucose, Magnesium, Potassium, Total Protein, Sodium, and Urea.

URINALYSIS - REAGENT STRIP

Code: UR1C1

Presentation: Liquid (10 mL)

Level: Normal and High



VITAMIN D

Code: VITD

Presentation: Lyophilized (0.5 mL)

Level: 1 and 2

ZIKA VIRUS - IgG

Code: ZIKA

Presentation: Lyophilized (0.5 mL)

Level: Reagent and Non-Reagen

Materials subject to stock availability.

INSTRUCTIONS FOR USE AND PRO-IN VALUES

Samples for Internal Quality Control - PRO-IN have Instructions for use prepared with all necessary information, including storage, stability, instructions for lyophilized materials' correct reconstitution, Average Values and Standard Deviation (SD) of each constituent, in several methods. The Chemical Safety Data Sheets (FISPQ) are also available.

Instructions for use can be accessed directly through the PNCQ website, as well as through the restricted area. Check below.

From the PNCQ website

Just position the mouse over the main menu bar on PRODUCTS AND SERVICES and click on PRODUCT CATALOG.

On the list, locate and click on the desired sample – in the example below,



HEMATOLOGIA – and a screen with the available lots will open. Click on the lot to open the instructions for use.

From the Restricted Area



Enter the restricted area with your login and password. Click on PRO-IN VALUES



In the list, locate the desired sample and click on the lot.

Control Sample	Lot	Preparation	Level	Volume	Expiration date
Hematology (DRE)	0265 0110216	10000	Level I	0.5 ml	1/30/2016
	0265 0110216	10000	Level II	0.5 ml	1/30/2016
	0265 0110216	10000	Level III	0.5 ml	1/30/2016

Regardless of the access type, the Instructions for Use will open automatically.

In the image below, we highlighted the information on storage, stability and instructions for reconstitution of the hematology control sample:

Programa Nacional de Controle de Qualidade
Instituto Nacional de Metrologia, Qualidade e Tecnologia - INMETRO

INSTRUÇÕES DE USO

Aplicação
Este produto é utilizado para controle de qualidade em laboratórios de análises clínicas.

Preparação
Este produto deve ser reconstituído com um volume constante de água reagentes, conforme indicado no rótulo.

Armazenamento e Estabilidade
Este produto deve ser armazenado em temperatura ambiente, protegido da luz e da umidade.

Storage and Stability

This product will remain stable until the end of the period of expiration since that is stored at a temperature of 2 to 8 °C. After reconstitution, the control sample will remain stable for 30 days at a temperature of 2 to 8 °C.

Instruction of Reconstitution

Using a volumetric pipette, reconstitute the control sample with a constant volume on the label of water reagent, wait 30 minutes, shaking and inverting once in a while in this interval for a perfect homogenization.

On the following pages, you will find the average Values and SD of each constituent in several methods:

 Programa Nacional de Controle de Qualidade Patrocinado pela Sociedade Brasileira de Análises Clínicas (SBAC)		Proceder de exames de Proficiência para Laboratórios Clínicos, Bancos de Sangue, Organizações de Diagnóstico <i>in vitro</i> e Alimentos		
		PNCQ		
INTERNAL CONTROL OF HEMATOLOGY LEVEL 1				
LOT CIHEM 02522017 EXP. JUL/2022				
CONSTITUENTS	METHODS	UNITS	AVERAGE VALUES	S.D.
LEUCOCYTES	ABACUS	mil/mm ³	6,95	0,69
	ABX MICROS 60	mil/mm ³	10,66	1,07
	ADVIA 150/2150/2150i	mil/mm ³	8,98	0,90
	CELL DYN 1700	mil/mm ³	13,00	1,30
	CELL DYN 3200/RUBY	mil/mm ³	2,44	0,25
	COULTER DDX 600/800	mil/mm ³	6,60	0,67
	COULTER LH750	mil/mm ³	5,36	0,54
	COULTER STKS	mil/mm ³	11,25	1,16
	COULTER T890	mil/mm ³	8,70	0,88
	COUNTER 19	mil/mm ³	11,00	1,10
	DIAGON DCELL 60	mil/mm ³	10,12	1,02
	HEMACOUNTER 60	mil/mm ³	8,25	1,33
	HEMASCREEN	mil/mm ³	7,60	0,77
	HEMATOCLIN 3.0/3.2	mil/mm ³	10,46	1,05
	HUMACOUNT 30/60 TS	mil/mm ³	5,65	0,57
	HUMACOUNT 8L	mil/mm ³	5,56	0,56
	LABTEST SDH 20	mil/mm ³	6,48	0,66
	LABTEST SDH 5/SDH 3	mil/mm ³	6,69	0,69
	MEDONIC FB20 CLASSIC	mil/mm ³	5,70	0,58
	MENDRAY BC 2300	mil/mm ³	15,71	1,53
	MENDRAY BC 3600	mil/mm ³	16,20	1,62
	MENDRAY BC 5300	mil/mm ³	5,15	0,49
	MENDRAY BC 6380	mil/mm ³	4,85	0,49
	MYTHIC 18	mil/mm ³	16,03	1,61
	PENTRA 60/80/90 XL	mil/mm ³	16,18	1,62
	SYSMEX KX21/K-4000/POCH 100i	mil/mm ³	6,65	0,70
	SYSMEX XP-300	mil/mm ³	6,20	0,66
	SYSMEX XT 2000i/1800i	mil/mm ³	7,65	0,77
SYSMEX XT 4000i	mil/mm ³	7,73	0,78	



HEMATOLOGY
(Hemoglobin, Leucocytes and platelets)

Code: CIHEM
Presentation: Lyophilized (1.5 mL)
Level: 1 and 2

PRO-IN IN REAL TIME

The PNCQ makes available to the Participating Laboratory, free of charge, the PRO-IN IN REAL TIME tool that assists in the preparation and evaluation of its internal quality control with the preparation of the Levey Jennings Chart, automatically.

It is necessary that the Participating Laboratory establishes its own averages according to the analytical variability in its laboratory.

After the inclusion of the value found for its internal control sample in the daily routine, it is possible to know the Mean, Standard Deviation (SD) and Coefficient of Variation (CV%), in addition to comparing performance with those of other participants, using the same method and apply Westgard rules.

Just click on the INTERNAL CONTROL IN REAL TIME tab, choose the control sample lot and click

on RELEASE RESULTS.

The Manual with the detailed use of this tool is available for consultation on the right side of the main screen.



The Lab can choose the option to set the release rules to compose the Mean Values. The type selected here will be the calculations basis to validate and assemble the releases through Average, SD, and CV. These values are displayed in the Average Calculation table.



After establishing your averages, you can use your own reference values:

The screenshot shows a window titled "REFERENCE VALUES OWN" with a close button (X) in the top right corner. The window contains the following elements:

- Result:** A text input field containing "84,000". To its right are two buttons: a green "+" button and a red "X" button.
- Result List:** A scrollable list box containing the values "83,000" and "85,000".
- Average:** A text input field containing "84,000".
- Standard Deviation:** A text input field containing "1,41".
- Coefficient of Variation:** A text input field containing "1,7".
- SALVAR:** A prominent red button with white text located at the bottom right of the window.

The Laboratory can run multiple launches at once! To do this, simply click on the button located in the menu bar of the PRO-IN IN REAL TIME screen or the "Simplified" tab.

The screenshot shows a window titled "SEND RESULTS IN SIMPLIFIED FORM" with a close button (X) in the top right corner. The window contains the following elements:

- Instructions:** Text at the top stating: "Below is the Coefficients that have already entered results at least once for this Pro-in Lot. All Coefficients will receive the data entered below. NOTE: Status displays the recording status. Press your cursor to check the recording message." Below this is a "Date" input field.
- Form Fields:** A "BIODISEGMENT" input field and a "Date" input field.
- Table:** A table with columns for Coefficient, Method, Result, Unit, and Status. It lists 11 different coefficients and their corresponding methods and results.
- Buttons:** "SEND" and "CLOSE" buttons at the bottom right.

Coefficient	Method	Result	Unit	Status
RODOLPHO	BIOCLIN 10		mg/dl	
REVALUS	BIOCLIN 10		mg/dl	
LAURO	BIOCLIN 10		mg/dl	
ESTRADIOL	BIOCLIN 10		mg/dl	
TRICOR	BIOCLIN 10		mg/dl	
RODOLPHO	BIOCLIN 10		mg/dl	
LAURO	BIOCLIN 10		mg/dl	
ESTRADIOL	BIOCLIN 10		mg/dl	
TRICOR	BIOCLIN 10		mg/dl	
RODOLPHO	BIOCLIN 10		mg/dl	
LAURO	BIOCLIN 10		mg/dl	
ESTRADIOL	BIOCLIN 10		mg/dl	
TRICOR	BIOCLIN 10		mg/dl	

Calculations are automatic:

CALCULATIONS AVERAGES				
	Average	OP	CV	Std
I. Participant	0.000	0.00	0.0	0
II. All Participants	161.054	9.00	5.6	1256
III. Reference Values PNCQ	161.000	11.00	6.8	0
IV. Reference Values Own	0.000	0.00	0.0	

After selecting the Constituent, Equipment, Reagent and Method, simply choose the Date, enter the Result and click on ADD to save the release.

LAUNCH

Launch Results Simplified

Constituent
GLICOSE

Equipment
LABTEST LABMAX PLENNO

Reagent
LABTEST

Method
GLICOSE-OXIDASE

Unit
mg/dl

Date
16/01/2019

Add Result
85

ADD

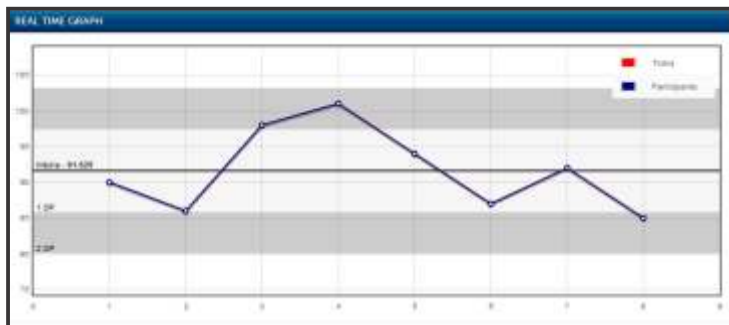
You can also set the Westgard rules that will be applied.

WESTGARD RULES

- Is rejected when a single control measurement exceeds $+$ or $- 3\sigma$. (Mandatory)
- Alert when a single control measurement exceeds $+$ or $- 2\sigma$
- Rejects when 4 consecutive control measurements exceed the same limit $+$ or $- 1\sigma$.
- Rejects when 2 consecutive control measurements exceed the same limit $+$ or $- 2\sigma$.
- Rejects when 1 control measurement exceeds the limit and another 2σ $+$ or $- 2\sigma$ in one day.
- Rejects when 6 consecutive control measurements are on the same side with respect to the average (or above or below).
- Is rejected when 10 consecutive control measurements are on the same side with respect to the average (or above or below).
- Rejects when observed trend of 7 control measurements in the same direction. (Getting progressively higher or lower).

SALVAR

This tool makes it possible to generate the Levey Jennings chart automatically.



REAGENT VALIDATION PANELS – PANELS

GUIDELINES

Validation can be defined as the documented evidence that a procedure, process, system or method actually leads to the expected results, against samples and reference Panels, confirming its sensitivity, specificity, reproducibility and stability.

The PNCQ manufactures **Reagent Validation Panels**, offering 3 already standardized formats of **Panels for Kits Validation for Hemotherapy** and other services, according to market needs, upon request.

RESOLUTION* RDC 34:2014 from ANVISA establishes the Good Practices in the Blood Cycle and determines that Hemotherapy Services must make validation of processes considered critical for the quality assurance of products and services before their introduction, and revalidate them whenever they change.

The laboratory donor's blood qualification tests must be carried out following the instructions of the reagent manufacturers, and any manipulation inherent in the methodological procedure must be made according to the recommendations, through a duly validated procedure.

The Ministry of Health Ordinance* 158:2016 redefines the technical regulation of hemotherapy procedures and establishes that the kits (diagnostic kits) must be approved prior to acquisition or initiate its use, and

that at least one lot of the kit should be used during the evaluation. For this purpose, blood samples with known and laboratory-characterized results should be used, or commercial panels.

It also establishes the Quality Control of Serology Reagents as being mandatory, conducting laboratory tests of high sensitivity to each donation, to detect markers for the following infections transmissible by blood: syphilis, Chagas disease, hepatitis B, hepatitis C, HIV and HTLV I/II with diagnostic kits suitable for this purpose, registered in ANVISA. The kits should be approved prior to purchase or before being used, on blood samples with known and laboratory-characterized results, or commercial panels under the same conditions and with the same procedures as used routinely.

**Brazilian legislation for Blood banks*

To receive Panels samples, please contact:
pncq@pncq.org.br or 55 (21) 2569-6867

REAGENT VALIDATION PANELS – PANELS



SPECIFIC PANELS - Presentation: Lyophilized

For each of the serological screening parameters (Anti-HIV 1+2, Anti-HTLV I/II, HBsAg, Anti-HBc, Anti-HCV, Anti-*T.cruzi*, Syphilis).

Each panel consists of 11 reagent and 1 non-reagent sample(s) for each of the parameters considered.



PERFORMANCE PANELS - Presentation: Lyophilized

For each of the serological screening parameters (Anti-HIV 1+2, Anti-HTLV I/II, HBsAg, Anti-HBc, Anti-HCV, Anti-*T.cruzi*, Syphilis).

Each panel consists of 20 control samples, distributed in the following way: 7 reagent and 3 non-reagent samples for the considered parameter, and 10 heterologous samples.



LOT-TO-LOT ASSESSMENT PANELS

- Presentation: Lyophilized

For each of the serological screening parameters (Anti-HIV 1+2, Anti-HTLV I/II, HBsAg, Anti-HBc, Anti-HCV, Anti-*T.cruzi*, Syphilis).

Corresponds to the use of a set of seven performance panels, one for each test of each parameter of the serological screening.

UNIT CONVERSION TABLES

To facilitate the filling of the PRO-EX results sheets, which vary in relation to units and methods, the PNCQ provides several unit conversion tables as well as some examples of applications.

Weights and Measures System

Weights and Me	Weight Unit	Value
TL (Teraliter)	Tg (Teragram)	1.000.000.000.000
GL (Gigaliter)	Gg (Gigagram)	1.000.000.000
ML (Megaliter)	Mg (Megagram)	1.000.000
kL (kiloliter)	kg (kilogram)	1.000
hL (hectoliter)	hg (hectogram)	100
daL (dekaliter)	dag (dekagram)	10
L (Liter)	g (gram)	1
dL (deciliter)	dg (decigram)	0,1
cL (centiliter)	cg (centigram)	0,01
mL (milliliter)	mg (milligram)	0,001
µL (microliter)	µg (microgram)	0,000.001
nL (nanoliter)	ng (nanogram)	0,000.000.001
pL (picoliter)	pg (picogram)	0,000.000.000.001
fL (femtoliter)	fg (femtogram)	0,000.000.000.000.001

Conversion Table - Volume Unit

→NUMERATORS		DENOMINATORS↓							
decimals	units	10 ⁰	10 ⁻¹	10 ⁻²	10 ⁻³	10 ⁻⁶	10 ⁻⁹	10 ⁻¹²	10 ⁻¹⁵
		L	dL	cL	mL	µL	nL	pL	fL
10 ⁰	L	x 1	x 10 ¹	x 10 ²	x 10 ³	x 10 ⁶	x 10 ⁹	x 10 ¹²	x 10 ¹⁵
10 ⁻¹	dL	x 10 ⁻¹	x 1	x 10 ¹	x 10 ²	x 10 ⁵	x 10 ⁸	x 10 ¹¹	x 10 ¹⁴
10 ⁻²	cL	x 10 ⁻²	x 10 ⁻¹	x 1	x 10 ¹	x 10 ⁴	x 10 ⁷	x 10 ¹⁰	x 10 ¹³
10 ⁻³	mL	x 10 ⁻³	x 10 ⁻²	x 10 ⁻¹	x 1	x 10 ³	x 10 ⁶	x 10 ⁹	x 10 ¹²
10 ⁻⁶	µL	x 10 ⁻⁶	x 10 ⁻⁵	x 10 ⁻⁴	x 10 ⁻³	x 1	x 10 ³	x 10 ⁶	x 10 ⁹
10 ⁻⁹	nL	x 10 ⁻⁹	x 10 ⁻⁸	x 10 ⁻⁷	x 10 ⁻⁶	x 10 ⁻³	x 1	x 10 ³	x 10 ⁶
10 ⁻¹²	pL	x 10 ⁻¹²	x 10 ⁻¹¹	x 10 ⁻¹⁰	x 10 ⁻⁹	x 10 ⁻⁶	x 10 ⁻³	x 1	x 10 ³
10 ⁻¹⁵	fL	x 10 ⁻¹⁵	x 10 ⁻¹⁴	x 10 ⁻¹³	x 10 ⁻¹²	x 10 ⁻⁹	x 10 ⁻⁶	x 10 ⁻³	x 1

Conversion Table - Weight Unit

→ NUMERATORS		DENOMINATORS ↓							
decimals		10^0	10^{-1}	10^{-2}	10^{-3}	10^{-6}	10^{-9}	10^{-12}	10^{-15}
	units	L	dL	cL	mL	μ L	nL	pL	fL
10^0	g	x 1	x 10^1	x 102	x 10^3	x 10^6	x 10^9	x 10^{12}	x 10^{15}
10^{-1}	dg	x 10^{-1}	x 1	x 10^1	x 10^2	x 10^5	x 10^8	x 10^{11}	x 10^{14}
10^{-2}	cg	x 10^{-2}	x 10^{-1}	x 1	x 10^1	x 10^4	x 10^7	x 10^{10}	x 10^{13}
10^{-3}	mg	x 10^{-3}	x 10^{-2}	x 10^{-1}	x 1	x 10^3	x 10^6	x 10^9	x 10^{12}
10^{-6}	μ L	x 10^{-6}	x 10^{-5}	x 10^{-4}	x 10^{-3}	x 1	x 10^3	x 10^6	x 10^9
10^{-9}	ng	x 10^{-9}	x 10^{-8}	x 10^{-7}	x 10^{-6}	x 10^{-3}	x 1	x 10^3	x 10^6
10^{-12}	pg	x 10^{-12}	x 10^{-11}	x 10^{-10}	x 10^{-9}	x 10^{-6}	x 10^{-3}	x 1	x 10^3
10^{-15}	fg	x 10^{-15}	x 10^{-14}	x 10^{-13}	x 10^{-12}	x 10^{-9}	x 10^{-6}	x 10^{-3}	x 1

NOTE: $x 10^2 =$ multiply by 100 $x 10^3 =$ divide by 1,000
 $x 10^6 =$ multiply by 1,000,000 $x 10^5 =$ divide by 100,000

→ CONVERSION FOR THE NUMERATOR

↓ CONVERSION FOR THE DENOMINATOR

When there is only one unit of the g (gram) or L (liter) systems to be transformed, the query of the tables must be always on the left (horizontal).

You must look for the line of the unit to be transformed and you should follow it (vertical) until finding the other unit, where the multiplication factor for the transformation is found.

Examples:

10 mg → μ g the multiplication factor is 10^3 (positive factor = multiply)
 Then $10 \times 10^3 = 10 \times 1,000 = 10,000 \mu\text{g}$

1.000 ng → μ g the multiplication factor is 10^3 (negative factor = divide)
 Then $1,000 \times 10^{-3} = 1,000 \div 1,000 = 1 \mu\text{g}$

10 mL → nL the multiplication factor is 10^3 (positive factor = multiply)
 Then $10 \times 10^6 = 10 \times 1,000,000 = 10,000,000 \mu\text{g}$

1.000 μ L → mL the multiplication factor is 10^{-3} (negative factor = divide)
 Then $10,000 \times 10^{-3} = 10,000 \div 1,000 = 10 \text{ mL}$

When there are 2 units for transformation, one in the numerator and one in the denominator (e.g.: mg/mL), the numerator unit is made as above (from the left, horizontally, until the unit is found, vertically).

For the denominator unit, the table query must start from above (vertically). You must look for the column of the unit to be transformed and you should follow it until you find (horizontally) the other unit and the factor of multiplication for the transformation.

Conversion Table - Weight Unit

1 mg/mL → mg/dL (only the denominator varies, this being, mL → dL)

numerator mg → mg the factor is 1

denominator mL → dL the factor is 10^2 (positive factor = multiply by 100)

Then: $(1 \times 1) \times 10^2 = (1 \times 1) \times 100 = 100 \text{ mg/dL}$

10 mg/mL → μg/mL (only the numerator varies, example, mg → μg)

numerator mg → μg the factor is 10^3 (positive factor = multiply by 1000)

denominator mL → mL the factor is 1

Then: $(10 \times 10^3) \times 1 = (10 \times 1,000) \times 1 = 10,000 \text{ μg/mL}$

10,000 ng/ml → mg/dL (both vary, this being, ng → mg and ml → dl)

numerator: ng → mg the factor is 10^{-6} (negative factor = divide by 1,000,000)

denominator: mL → dL the factor is 10^2 (positive factor = multiply by 100)

Then: $(10,000 \times 10^{-6}) \times 10^2$

$(10,000 \div 1,000,000) \times 100 = 1 \text{ mg/dL}$

QUALITY SEAL



For the active Participating Laboratories that obtain an Excellent or Good classification after one year of evaluation, the opportunity to acquire the Quality Seal of the PNCQ / SBAC is granted.

The seal can be added to the patients' reports, divulging your participation in the National Program of Quality Control, creating a differential and valuing your laboratory in the market.

This seal is provided at cost price; it is a registered trademark of the PNCQ and cannot be reproduced or printed in the reports.

The request can be made on the main page of the restricted area by filling in the information below:

Request	Date	Amount	Status
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Applicant's Name:

Modelo Selo:

Number of Stamps:

Value Shipping:

Sending stamps for CEP: 20270-340, will generate an extra expense in your monthly fee in the amount of:

PARTICIPATION CERTIFICATES AND EXCELLENCE CERTIFICATES

Each year, the PNCQ grants a Certificate based on your performance, as specified in the Participating Laboratory Manual. This certificate is issued free of charge, in paper, and is also delivered on an aluminum plate or brushed steel, at cost price.



According to the consecutive participation period in the PRO-EX, laboratories are also entitled to receive an Excellence Certificate, which may be requested in the restricted area.

In 1976, during the Fifth Brazilian Congress of Clinical Analyzes in Belo Horizonte/Minas Gerais, Dr. José Abol Corrêa distributed vials with lyophilized serum to 20 laboratory owners to process certain biochemical dosages. The results were analyzed, the averages established and the manual evaluations, sent to these laboratories.

Thus was born the Proficiency Testing Program of the Brazilian Society of Clinical Analyzes.

Subsequently other control samples were sent, initiating a phase of increasing expansion and modernization in recent years.

PNCQ is self-sufficient in the preparation of control samples at its headquarters in Rio de Janeiro, meeting the most stringent quality standards.

Today, we are proud to be the largest and best Proficiency Testing Provider in Brazil, with more than 5.500 associated laboratories, representing Brazil in several national and international institutions.



Patrocinado pela Sociedade Brasileira de Análises Clínicas

Our Certifications:



O PNCQ é acreditado pelo Cgcre do INMETRO como Provedor de Ensaio de Proficiência em conformidade com a ABNT NBR ISO/IEC 17043:2011 sob o número 0013



O PNCQ é acreditado pelo Cgcre do INMETRO como Produtor de Material de Referência em conformidade com a ABNT NBR ISO 17034:2017 sob o número 0012



Empresa certificada pela ABNT em conformidade com a ABNT NBR ISO 9001:2015 sob o número 23.008/04



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