Hellabio

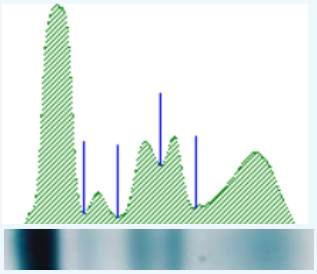
...means electrophoresis

THE CORRECT WAY TO SUPPORT CLINICIANS

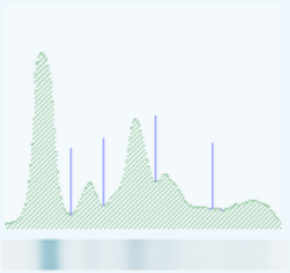
Hellabio

... MEANS ELECTROPHORESIS

Hyper γ-globulinemia

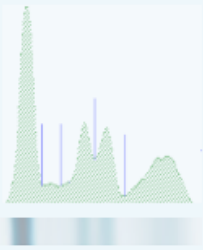


Nephrotic Syndrome

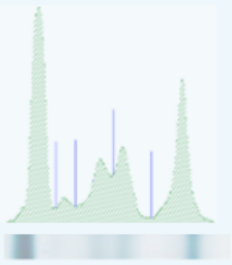


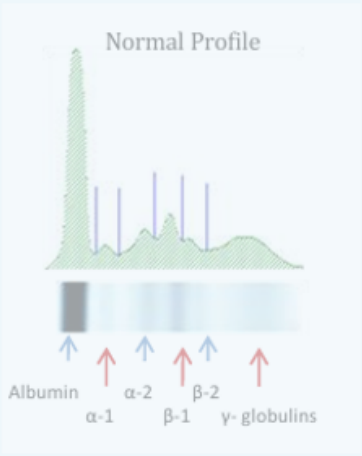
Liver Cirrhosis

Alpha-1 antitrypsin deficiency



Monoclonality



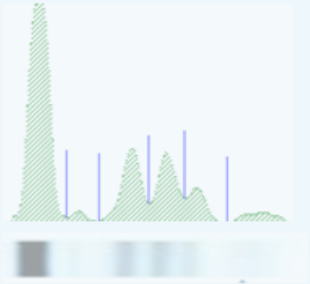


Biclonality

Suspicion of Cryoglobulins

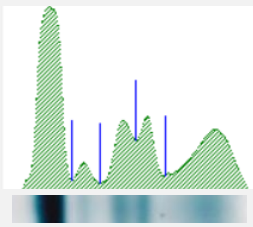
Acute Phase Reaction

Hypo γ-globulinemia



THE CORRECT WAY TO SUPPORT CLINICIANS

Hypergammaglobulinemia



Fractions	Values (%)	g/dl	NV (%)
Alb.	43.52	3.05	52.0 - 65.0
alpha1-	5.56	0.39	2.0 - 5.5
alpha2-	12.48	0.87	6.0 - 11.7
beta-	11.85	0.83	8.2 - 14.5
gamma-Glob.	26.6	1.86	9.5 - 19.8
A/G	1.15		

Hypergammaglobulinemia (polyclonal gammopathy) refers to the overproduction of more than one class of immunoglobulins by plasma cells. **Polyclonal gammopathy** is generally considered a benign condition that does not progress to overt malignancy, contrary to monoclonal gammopathy of undetermined significance. **Hypergammaglobulinemia** is most commonly associated with:

- liver disease,
- acute or chronic inflammation,
- autoimmune disorders,
- some malignancies.

Hellabio Protein Electrophoresis kits:

The **Hellabio Agarose Gels** for protein electrophoresis are intended to be used for in vitro diagnosis in Hellabio **Manual** and **Automatic** system. They enable the quantitative and qualitative estimation of proteins in serum and other biological fluids.

Code	MPE4	PE10	PE20	PE30	MPEβ /β4	PEβ/β	PEβ/β 15	PEβ/β 20	PEβ/β 30
Tests/gel	4	10	20	30	4	10	15	20	30

For much more alternative kits please see the list with more than 130 kits or contact hellabio@hellabio.com

References:

1] Beuvon C, et al [2021]: Eur J Intern Med. 90:119-121.

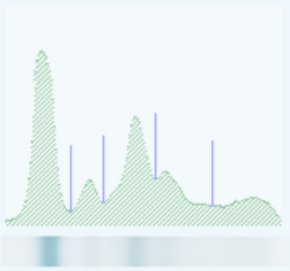
2] Zhao EJ, et al [2021]: Lancet Haematol. 8(5):e365-e375

3] Raj S, et al [2019]: Ann Allergy Asthma Immunol. 122(1):11-16

Hellabio

... MEANS ELECTROPHORESIS

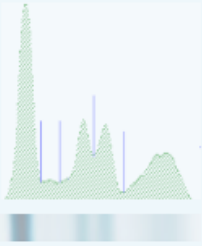
Nephrotic Syndrome



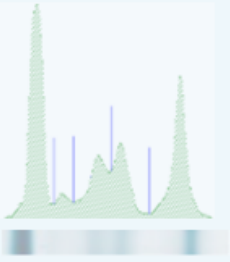
Hyper γ-globulinemia

Liver Cirrhosis

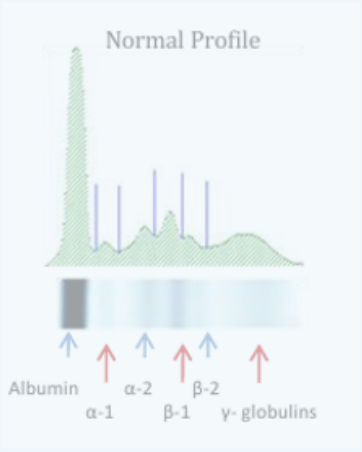
Alpha-1 antitrypsin deficiency



Monoclonality

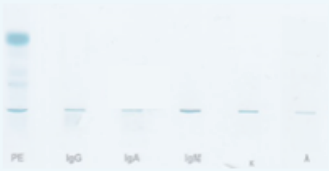


Normal Profile



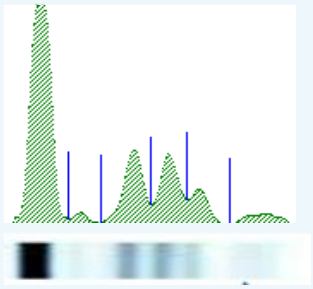
Biclonality

Suspicion of Cryoglobulins



Acute Phase Reaction

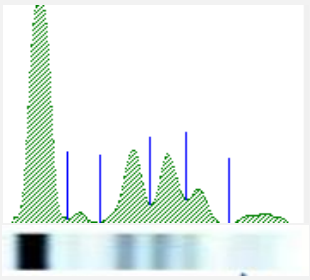
Hypo γ-globulinemia



THE CORRECT WAY TO SUPPORT CLINICIANS

Hellabio ... MEANS ELECTROPHORESIS

Hypo γ-globulinemia



Fractions	Values (%)	g/dl	NV (%)
Alb.	63.8	4.73	52.0 - 65.0
alpha1-	5.24	0.16	2.0 - 5.5
alpha2-	11.21	0.82	6.0 - 11.7
beta-	13.85	1.03	8.2 - 14.5
gamma-Glob.	5.9	0.42	9.5 - 19.8
A/G		1.76	

Hypogamma- [Agamma-] globulinemia can be resulted from a variety of primary genetic defects or secondary effects of the immune system, resulting in a weakening of the immune system immune system. [1,2,3]

There are two main types of Hypogammaglobulinemia that can affect both children and adults.

Primary Hypoglobulinemia

Caused by:

In adults:

- Genetic defects usually affect B-cell development and/or function.
- Conditions that result in immunoglobulin loss or affect B-cell numbers and/or function

In children

- a common

Secondary Hypoglobulinemia

Caused by:

- Gastrointestinal losses
- Nephrotic syndrome
- Hematologic malignancy
- Medication (such as corticosteroids and chemotherapy)
- HIV

Hellabio Protein Electrophoresis kits:

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Code	MPE4	PE10	PE15	PE20	PE30	MPEβ/β4	PEβ/β	PEβ/β15	PEβ/β20	PEβ/β30
Tests/gel	4	10	15	20	30	4	10	15	20	30

For much more alternative kits please see the list with more than 130 kits or contact hellabio@hellabio.com

References:

1] Mc Cusker C, et al [2018]: Allergy, Asthma & Clinical Immunology.;14(S2).

2] Otani I.M. et al [2022]: Journal of Allergy and Clinical Immunology.;149(5):1525-1560

3]Carbone J, and Jolles S. [2019]: Frontiers in Immunology. 2019;10.

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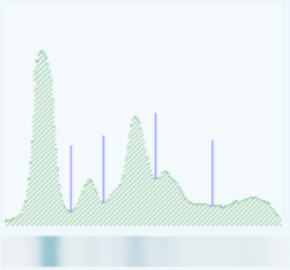
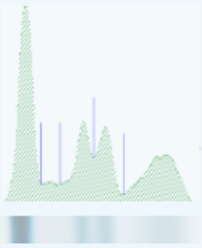
Liver Cirrhosis

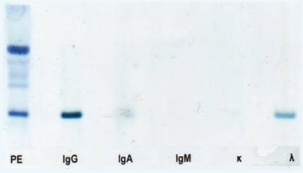
Hyper γ-globulinemia

Nephrotic Syndrome

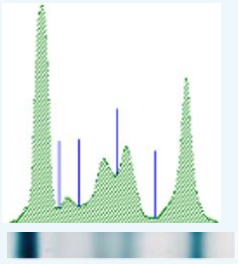


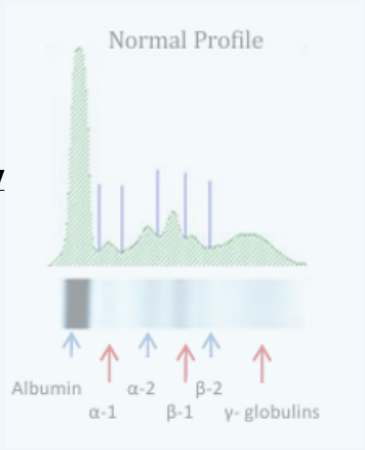
Alpha-1 antitrypsin deficiency



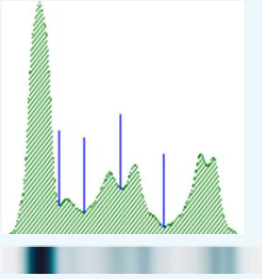


Monoclonality

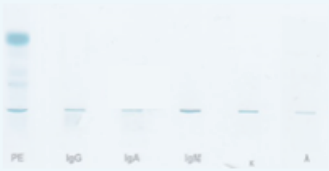




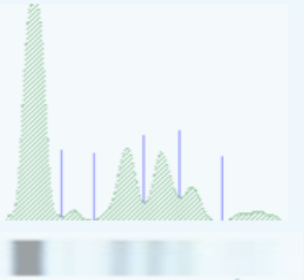
Biclonality



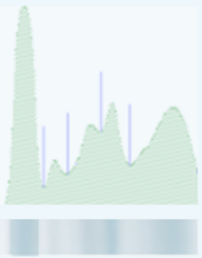
Suspicion of Cryoglobulins



Hypo γ-globulinemia



Acute Phase Reaction

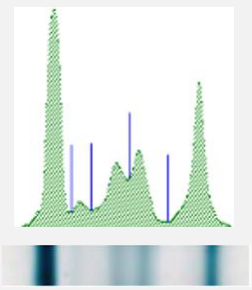


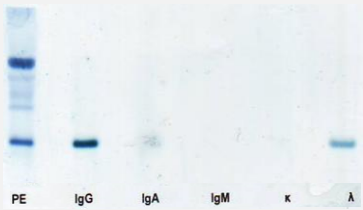
THE CORRECT WAY TO SUPPORT CLINICIANS

Hellabio

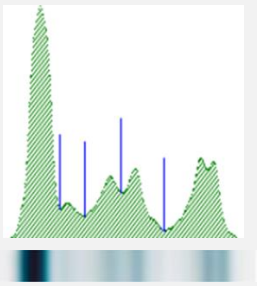
... MEANS ELECTROPHORESIS

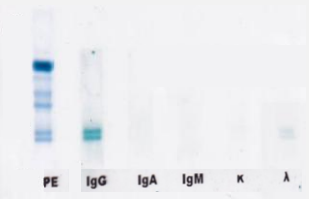
Paraproteinemias





Monoclonal Ig λ band





Biclonal Ig λ band

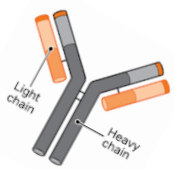
Paraproteinemias are a diverse group of diseases defined by the presence of a serum **monoclonal** protein (M-protein) due to aberrant overproduction by a monoclonal plasma cell population.

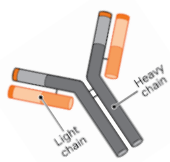
Monoclonal or **Oligoclonal Paraproteinemias** [**Gammopathies**] are associated with a clonal process A is malignant or potentially malignant. In contrast, **polyclonal gammopathies** may be caused by any reactive or inflammatory process, and they usually are associated with nonmalignant.

By **Immunofixation electrophoresis** (**IFE**) proteins of sample are first according to their charge separated by electrophoresis on the agarose film, and then they (as antigen) are reacted and fixed with monospecific polyclonal antisera. The monoclonal paraproteins can be heavy chain of **IgG, IgA, IgM, (IgD, IgE**) and / or light chain of kappa or lambda.

The presence of monoclonal paraproteins in serum can be caused by:

- Multiple myeloma
- Non-Hodgkin lymphoma
- Plasma cell leukemia
- Primary amyloidosis
- Solitary plasmacytoma
- Waldenstrom macroglobulinemia





Hellabio Immunofixation Electrophoresis kits:

Serum protein monoclonal bands will sometimes be found following serum protein electrophoresis in patients presenting with classic signs or symptoms of multiple myeloma or with non-specific symptoms. The **Hellabio Immunfixation** kits are an easy way to identify these monoclonal bans by **Manual** and **Automatic** system.

Code	IFE01	IFED01	IFEQ4	PIFE6	PIFE12	PIFE36	PIFEA6	PIFEA12	PIFEA36
Tests/gel	1	2	4	6	12	36	6	12	36

For much more alternative kits please see the list with more than 130 kits or contact hellabio@hellabio.com

References:

1. O'Connell T, et al [2005]: Am Fam Physician.2005 Jan 1;71(1):105-112

2. Kyle C (Editor)[2008] A handbook for the interpretation of laboratory tests (4th edition). Diagnostic Medlab; Wellington3] Raj S, et al [2019]: Ann Allergy Asthma Immunol. 122(1):11-16

3. Singer C. [1997]: BMJ;314:960

4. Boccadoro M, et al [1997]: Hematol Oncol Clin North Am. 1997;11:111–314

5. Kyle R , et al [1986]: Seminars in Oncology 13(3):310-17

6. Keren, DF. [1010]: Clin Lab News ;36(no 9):8-10

7. Yaowaree Leavell MD, et al[2021]: Clinics in Geriatric Medicine,Volume 37, 301-312

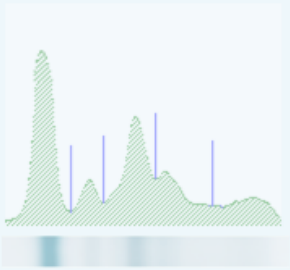
Hellabio

... MEANS ELECTROPHORESIS

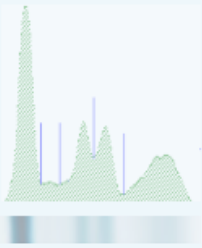
Liver Cirrhosis

Hyper γ-globulinemia

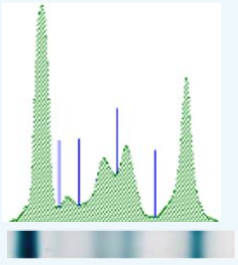
Nephrotic Syndrome



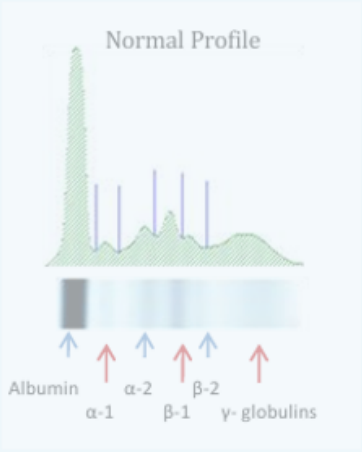
Alpha-1 antitrypsin deficiency



Monoclonality

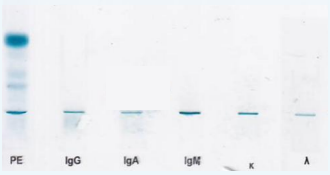


Normal Profile

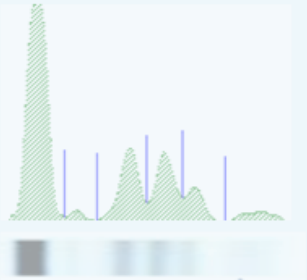


Biclonality

Suspicion of Cryoglobulins



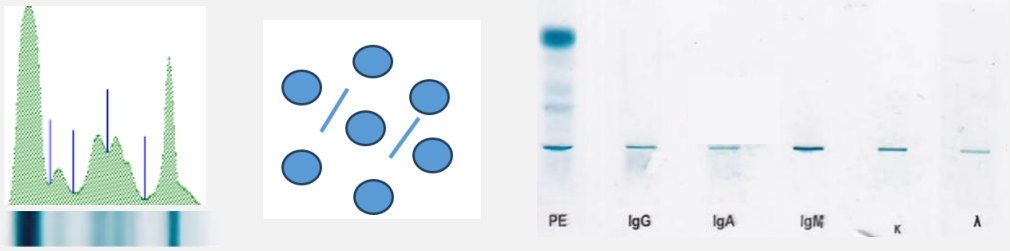
Hypo γ-globulinemia



Acute Phase Reaction

THE CORRECT WAY TO SUPPORT CLINICIANS

Cryoglobulinemia



Cryoglobulins (cold precipitable serum globulins) are **thermoproteins** that precipitate at low temperatures in serum and can cause multiorgan damages (most commonly affecting the kidneys and skin as well as liver, peripheral nerve manifestations, systemic vasculitis, Raynaud's syndrome, and in patients with the typical triad of purpura, weakness, and arthralgias).

Cryoglobulin consists mainly of **immunoglobulins**, which form various complexes. They are classified into three types (I, II, and III) according to their composition. **Type II** cryoglobulinemia seems to have relationship with **hepatitis C**, which is being widely studied.

Cryoglobulinemia can be present alone ("idiopathic"), but it's frequently associated with other underlying diseases, such as:

- Macroglobulinemia
- Chronic lymphocytic leukemia
- Systemic lupus erythromatosus (lupus)
- Hepatitis C virus
- Cancers
- Lymphoma
- Multiple myeloma
- Systematic sclerosis

Hellabio Cryoglobulin kits:

The immunodiffusion test, also called Ouchterlony test, is a diagnostic test that allows antigen detection. In the case of Cryoglobulinemia it supports differentiation and identification the kind of the types of Cryoglobulins. The **Hellabio Cryoglobulins kits** are intended to be use as supporting technique of Immunfixation/ Immunoelectrophoresis to differentiate monoclonal paraproteinemia and immunocomplexies.

Code	IFE01	IFED01	IFEQ4	PIFE6	PIFE12	PIFE36	PIFEA6	PIFEA12	PIFEA36
Tests/gel	1	2	4	6	12	36	6	12	36

For much more alternative kits please see the list with more than 130 kits or contact hellabio@hellabio.com

References:

1. Adam C. et al [1981]:Infect. Immun.31, 530

2. Bombardieri, S.etal [1979]: Amer. J. Med.66, 748

3.Bonomol L.et al[1971]: Clin. exp. Immunol.9, 175

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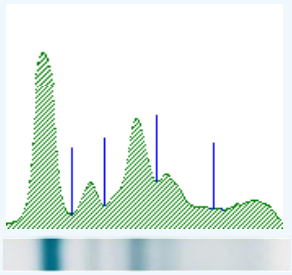
... MEANS ELECTROPHORESIS

Nephrotic Syndrome

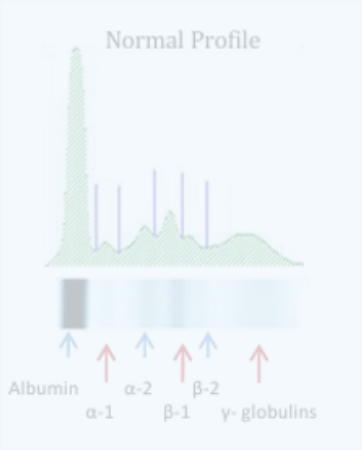


Hyper γ-globulinemia

Liver Cirrhosis

Alpha-1 antitrypsin deficiency

Normal Profile



Monoclonality

Biclonality

Suspicion of Cryoglobulins

Acute Phase Reaction

Hypo γ-globulinemia

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Hellabio

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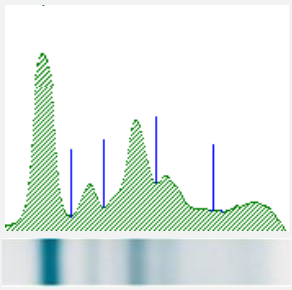
Nephrotic Syndrome



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Alb.	49.12	3.64	52.0 - 65.0
alpha1-	5.26	0.38	2.0 - 5.5
alpha2-	29.71	2.18	6.0 - 11.7
beta-	7.74	0.57	8.2 - 14.5
gamma-Glob.	8.17	0.58	9.5 - 19.8
Albumin to Globulins ratio = 0.96			

Nephrotic Syndrome is a kidney disorder characterized by a combination of symptoms caused by damage to the glomeruli, which are the tiny filtering units in the kidneys. In nephrotic syndrome the damage to the glomeruli results in a greater loss of urine protein than the synthetic capacity of the liver can replace.
Protein loss depends on the degree of damage to the glomerular basement membrane. If it is damaged to a lesser extent, only smaller molecules are lost (a decrease in albumin concentration), and if more damaged, IgG is also lost, which manifests itself as a decrease in the γ fraction. At the same time, the values of the α2 fractions are usually increased (due to α2 macroglobulin), and the β fraction is slightly lower (due to the lipoprotein β1). In the more severe form of nephrotic syndrome, all fractions in serum protein electrophoresis, except the α2 fraction, are usually reduced due to larger α2 macroglobulin molecules that do not cross the glomerular basement membrane and the synthetic liver activity is increased

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Code	MPE4	PE10	PE15	PE20	PE30	MPEβ/β4	PEβ/β	PEβ/β15	PEβ/β20	PEβ/β30
Tests/gel	4	10	15	20	30	4	10	15	20	30

For much more alternative kits please see the list with more than 130 kits or contact hellabio@hellabio.com

References:

1. Chauvear, D et al [1996]:Nephrol Dial Transplant. ; 11:413-415

2. Kyle, R [994]: Blood Rev. 8:135-1413.Bonomol L.et al[1971]: Clin. exp. Immunol.9, 175

3. Johnson, W · et al [1990] Arch Intern Med. 150:863-869

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Liver Cirrhosis

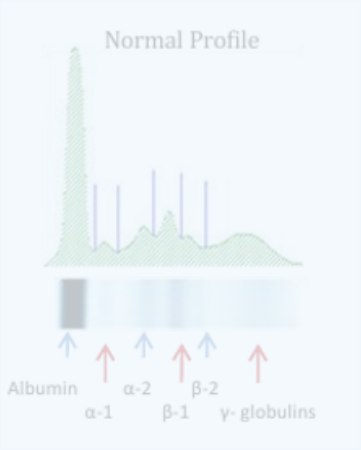
Hyper γ-globulinemia

Nephrotic Syndrome

Alpha-1 antitrypsin deficiency

Monoclonality

Normal Profile

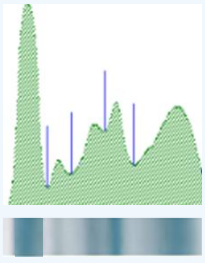


Biclonality

Suspicion of Cryoglobulins

Hypo γ-globulinemia

Acute Phase Reaction

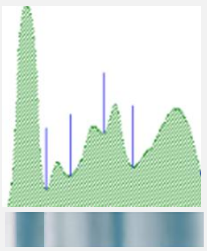


THE CORRECT WAY TO SUPPORT CLINICIANS

THE CORRECT WAY TO SUPPORT CLINICIANS

Hellabio ... MEANS ELECTROPHORESIS

Inflammation



Fractions	Values (%)	g/dl	NV (%)
Alb.	44.31	3.28	52.0 - 65.0
alpha1-	7.82	0.56	2.0 - 5.5
alpha2-	12.52	0.92	6.0 - 11.7
beta-	13.41	0.99	8.2 - 14.5
gamma-Glob.	21.94	1.55	9.5 - 19.8
Albumin to Globulins ratio = 0.80			

The inflammatory response can be either **acute** or **chronic**.
Acute inflammation typically lasts only a few days and involves increases in fibrinogen, alpha1-antitrypsin, haptoglobin, ceruloplasmin, CRP, the C3 portion of complement, and alpha1 acid glycoprotein. Often, there are associated decreases in the albumin and transferrin levels.
In **chronic inflammation**, the inflammation becomes the problem rather than the solution to infection, injury or disease. Chronically inflamed tissues continue to generate signals that attract leukocytes from the bloodstream. Diseases characterized by chronic inflammation include, among others: Crohn's, Lupus, Psoriasis, Diabetes, Coronary artery disease (atherosclerosis), Rheumatoid arthritis, Asthma, Solid organ transplant rejection, Chronic Bronchitis Cancer. Chronic inflammation causes decrease of the albumin band, and increase of a1,a2 and gamma globulins due to polyclonal gammopathy.

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Tests/gel	4	10	15	20	30	4	10	15	20	30

For much more alternative kits please see the list with more than 130 kits or contact hellabio@hellabio.com

References:

1. O'Connell TX,et al. [2005]: Am Fam Physician; 71:105–112

2. Kyle RA [1994: Clin Chem; 40:2154–2161

3. Kyle RA [1999]: Arch Pathol Lab Med;123:114–118

4. Chen L, et al. [2017]: Oncotarget. 9(6):7204-7218

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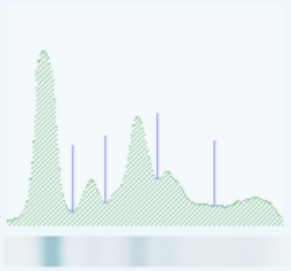
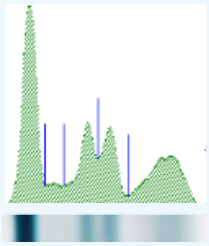
Liver Cirrhosis

Hyper γ-globulinemia

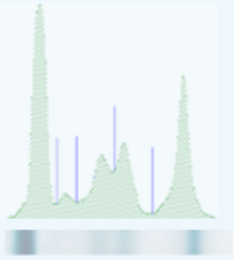
Nephrotic Syndrome



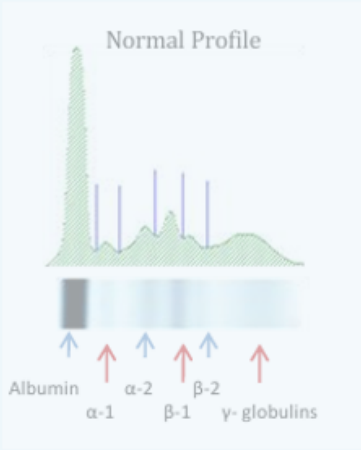
Alpha-1 antitrypsin deficiency



Monoclonality

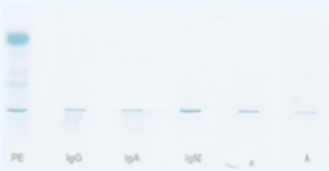


Normal Profile

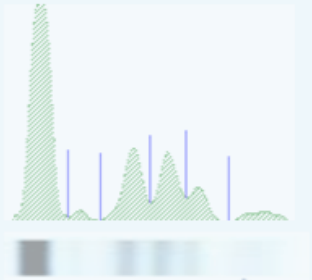


Biclonality

Suspicion of Cryoglobulins



Hypo γ-globulinemia



Acute Phase Reaction

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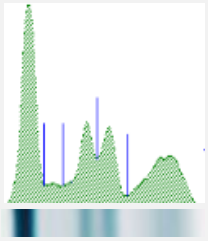
Alpha-1 Antitrypsin Deficiency



Fractions	Values (%)	g/dl	NV (%)
Alb.	61.54	4.56	52.0 - 65.0
alpha1-	1.17	0.08	2.0 - 5.5
alpha2-	9.99	0.73	6.0 - 11.7
beta-	13.02	0.96	8.2 - 14.5
gamma-Glob.	14.28	1.01	9.5 - 19.8
A/G		1.60	

Alpha-1 Antitrypsin (AAT) Deficiency is a genetic disorder that results in low levels of a protein called **alpha-1 antitrypsin** (AAT). This protein is primarily produced in the liver and serves a crucial role in protecting the lungs from damage caused by an enzyme called neutrophil elastase, which is released by white blood cells during inflammation.
In AAT deficiency, either the production of alpha-1 antitrypsin is insufficient or the protein is produced in an abnormal form that cannot function properly. This leads to an increased risk of lung and liver damage, and the condition can cause various respiratory and liver diseases.

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Tests/gel	4	10	15	20	30	4	10	15	20	30

For much more alternative kits please see the list with more than 130 kits or contact hellabio@hellabio.com

References:

1. Stoller JK, et al [2005] Chest; 128: 1989–1994

2. Miravitlles M, et al [2010]: Eur Respir J; 35: 960–968

3. Greulich T,et al [2013]: Respir Med; 107: 1400–1408

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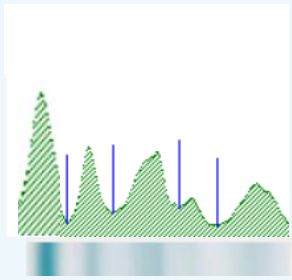
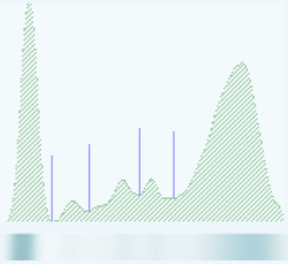
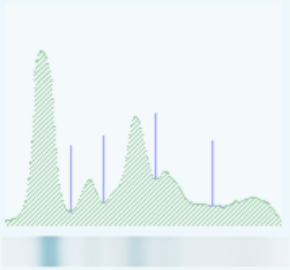
Liver Cirrhosis



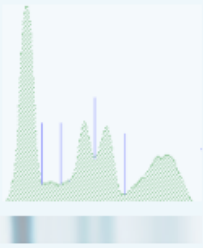
Hyper γ-globulinemia



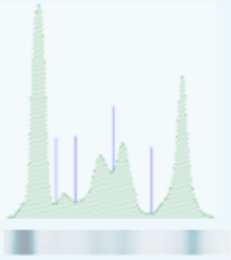
Nephrotic Syndrome



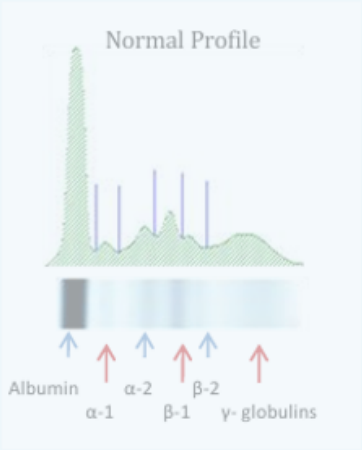
Alpha-1 antitrypsin deficiency



Monoclonality

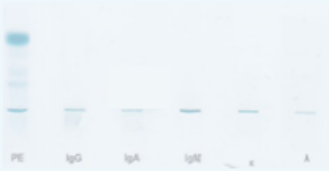


Normal Profile

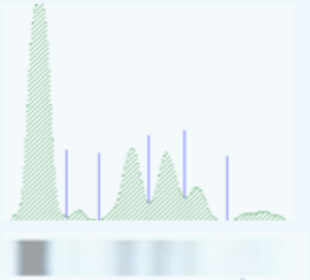


Biclonality

Suspicion of Cryoglobulins



Hypo γ-globulinemia



Acute Phase Reaction

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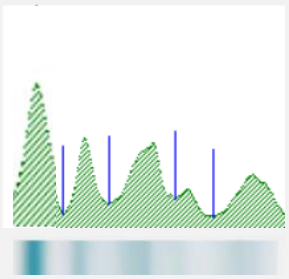
Liver Cirrhosis and Failure



Fractions	Values (%)	g/dl	NV (%)
Alb.	48.98	3.63	52,0 - 65,0
alpha1-	9.89	0.16	2,0 - 5,5
alpha2-	5.02	0.37	6,0 - 11,7
beta-	13.02	0.96	8,2 - 14,5
gamma-Glob.	23.09	1.64	9,5 - 19,8
A/G	0.96		

Liver cirrhosis is a chronic condition characterized by extensive scarring (fibrosis) of the liver tissue, resulting from prolonged damage. This scarring disrupts the liver's architecture and impairs its ability to function.
Acute liver failure (ALF) is a rapid loss of liver function in individuals without preexisting liver disease. It is a serious and potentially life-threatening condition, requiring urgent medical care.

Acute Liver Failure

Caused by:

- Drugs
- Toxins
- Viral hepatitis

Chronic Cirrhosis

Caused by:

- Alcohol
- Nonalcoholic fatty liver disease (NAFLD)
- Viral hepatitis

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Tests/gel	4	10	15	20	30	4	10	15	20	30

For much more alternative kits please see the list with more than 130 kits or contact hellabio@hellabio.com

References:

1. Catanzaro R, et al [2013]: Hepatobiliary and Pancreatic Diseases International. 12(5):500–507

2. Caviglia GP,et al [2013]: Annals of Hepatology. ;13(1):91–97

3. Clarke JM,et al [2002]: Gastroenterology;122:1649-1657

4. Corrao G, Aricò S [2003]: Hepatology;27(4):914-919

...means electrophoresis