IP-10 – A new marker to detect cellular immune activation

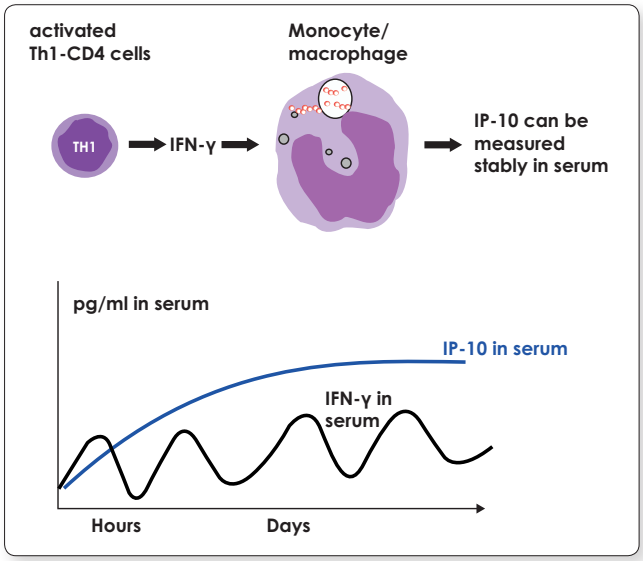
P-10 (interferon-gamma induced protein 10 kD, CXCL10) is a protein that is produced by monocytes and macrophages as well as in small quantities by endothelial cells after contact with IFN-γ. Because IP-10 is exclusively induced by interferons and circulates in significantly higher concentrations in the blood than the interferons themselves, this chemokine is an ideal marker to determine the biological activity of IFN-γ and thus the T cellular or T-cell-induced immune activation.

The biological functions of IP-10 have not yet been fully determined. It stimulates monocytes and NK cells and induces T cells to migrate into the tissue. It also has a regulatory effect on T cell and precursor cell maturation in the bone marrow. It elevates the expression of various adhesion molecules on the endothelia and inhibits angiogenesis. IP-10 has no effect on neutrophil granulocytes, however.

Advantage of IP-10 compared to IFN-γ

As an induced protein, its release is not undulating and staged, unlike IFN-γ. It has a higher in vivo and ex vivo stability. Both of these aspects mean that normal levels of IP-10 can be measured (basal activation) even in healthy people and the known sensitivity gap for IFN-γ for blood concentration measurements in the lower range does not play a role.

Due to the specific IFN-γ-mediated induction, IP-10 levels provide an indirect measure of IFN-γ history over the last 24 to 48 hours.



Indications for IP-10 determination

1. Detection of T-cell-induced TH1-immune activation
2. Follow-ups and monitoring of immunomodulatory therapies

Material

2 ml whole blood for serum extraction

Sample receipt within 24 hrs has to be ensured. The sample should be stored and transported at room temperature. Within the Berlin city area, we offer a courier service (+49 (0)30 7701- 250). For collections beyond Berlin, please contact our complimentary courier service (+49 (0)30 77001-450).

Invoicing

Cost per analysis are 27.98 €.

Literature

- Role for interferon-gamma inducible chemokines in endocrine autoimmunity: an expanding field. Rotondi M, Lazzeri E, Romagnani P, Serio M. J Endocrinol Invest. 2003;26:177-80.
- Neutrophil-derived cytokines: potential therapeutic targets in inflammation. Kasama T, Miwa Y, Isozaki T, Odai T, Adachi M, Kunkel SL. Curr Drug Targets Inflamm Allergy. 2005 4:273-9.

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Test	Result	Unit	Reference Range
IP-10 i.s. (PIA)	**2312**	pg/ml	< 900
Interferon gamma-induced protein 10 (IP-10) is a biomarker for the effect of interferon-gamma (IFN-g) on monocytes. An increase in IP-10 levels indicates a TH1-dominant systemic T lymphocyte response.			
Interferon-gamma i.s. (EIA)	**0.2**	IU/ml	< 0.2
Slightly elevated IFN-g in the serum.			
CRP hoch sensitiv i.s. (CLIA)	2.43	mg/l	< 3.0
No indication of a myelomonocyte inflammation. The results do not exclude activation of the T lymphocytes (see IP-10).			

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