

Infertility and Autoimmune Antigen Array, 25-Plex (Cat. No. PA025)

Serial#	Antigen ID	Antigen Name	UniProt ID	Gene Symbol	Description
1	ACTL7a	Actin-like protein 7A	Q9Y615	ACTL7A	The ACTL7a autoantibody is associated with infertility because it can target the ACTL7a protein, which is crucial for normal sperm function and development. Antibodies against ACTL7a can impair sperm motility, acrosome formation, and the ability to fertilize an egg, leading to reduced fertility or total fertilization failure in both males and females.
2	AMH	anti-müllerian hormone	Q16671	AMHR2	Anti-Müllerian hormone (AMH) autoantibodies can cause infertility by attacking AMH itself, leading to reduced ovarian reserve and potentially contributing to conditions like premature ovarian insufficiency (POI). These autoantibodies are a form of autoimmune infertility, where the immune system mistakenly attacks the body's own tissues. The presence of these antibodies is linked to fertility problems, including difficulty conceiving and poor response to fertility treatments.
3	ANDR	Androgen receptor	P10275	DR	Autoantibodies against androgen receptor can cause resistance to androgen and can lead to undervirilized or infertile males.
4	B2GPI	β2 glycoprotein I	P02749	APOH	β2GPI autoantibodies are associated with infertility and pregnancy complications, such as recurrent pregnancy loss and IVF implantation failure, although the exact mechanisms are still being researched. Specifically, antibodies against the β2GPI/HLA-DR complex are linked to these issues, and some studies suggest they are more prevalent in women with recurrent implantation failure and certain conditions like severe endometriosis. Early assessment of these antibodies is recommended for women undergoing IVF.
5	CL	Cardiolipin			Cardiolipin autoantibodies (ACA) are linked to infertility, particularly in cases of unexplained infertility, and are found more frequently in infertile women than in healthy women. These antibodies may contribute to infertility by impairing embryonic implantation and affecting uterine vascular function. While their role in failed implantation is still debated in some contexts, they have been associated with negative outcomes in IVF and are also linked to recurrent pregnancy loss, with high-titer IgG antibodies showing a stronger correlation.
6	Estradiol	β-Estradiol	P37058	HSD17B3	Estrogen autoantibodies can contribute to infertility by interfering with hormone levels or causing false readings in lab tests. Autoantibodies like anti-estrogen antibodies can disrupt the body's natural hormonal signals and affect reproductive processes. Additionally, other autoantibodies, such as antinuclear antibodies (ANAs), are associated with poor egg quality, impaired embryo development, and recurrent pregnancy loss.
7	FSH	Follicle-stimulating hormone	P01225	FSHB	An autoantibody to follicle-stimulating hormone (FSH) can cause infertility by interfering with its function in both men and women, leading to reproductive challenges like poor sperm quality, a diminished ovarian response to fertility treatments, and difficulties with implantation. In women, anti-FSH antibodies can disrupt egg maturation and ovulation, while in men, they can impair sperm quantity and quality. This condition is associated with various forms of infertility, including unexplained infertility, repeated IVF failure, and premature menopause.
8	Juno	Sperm-egg fusion protein Juno	A6ND01	IZUMO1R	A Juno autoantibody is an immune system protein that attacks the Juno protein, which is essential for sperm and egg fusion. Since Juno is required for fertilization, an autoantibody against it can cause infertility by preventing the sperm and egg from combining. This is a significant area of research for developing new fertility treatments and contraceptive drugs.
9	LH	Luteinizing hormone (LH)	P01229	LHB	Luteinizing hormone (LH) autoantibodies can cause infertility by disrupting the normal function of reproductive hormones, leading to issues like anovulatory cycles in women or poor sperm development in men. These autoantibodies are immune responses where the body mistakenly attacks its own LH, and they are frequently found in women with unexplained infertility or those undergoing fertility treatments. The presence of these antibodies may indicate an underlying autoimmune disorder affecting reproductive health.
10	NASP	Nuclear autoantigenic sperm protein	P49321	NASP	Autoantibodies against Nuclear Autoantigenic Sperm Protein (NASP) are linked to infertility because they can impair sperm function, such as motility and fertilization, and can cause the immune system to damage or attack sperm. NASP is a protein found in sperm that is critical for the nucleus, and when the body creates autoantibodies against it, this can lead to reproductive failure.
11	Progesterone	Steroid hormone	P06401	PGR	Progesterone autoantibodies are linked to infertility and recurrent pregnancy loss, possibly because they disrupt normal reproductive functions. They are associated with autoimmune conditions, and in men, can impair sperm function. In women, they may interfere with implantation, embryo development, or cause immune-mediated hormonal dysregulation.
12	PSA	Prostate-Specific Antigen	P07288	KLK3	PSA autoantibodies can negatively impact male fertility by reducing sperm concentration, progressive motility, and normal morphology. Studies show a significant correlation between anti-PSA antibody levels and poorer semen quality, making them a potential biomarker for assessing male infertility. These antibodies are linked to various risk factors, including inflammation, infection, and previous injury to the testicles.
13	SAGA-1/CD52	Sperm Agglutination Antigen-1 (SAGA-1) /CAMPATH-1 antigen	P31358	CD52	SAGA-1 autoantibodies can contribute to infertility by targeting the SAGA-1 protein on the surface of sperm, potentially leading to reduced sperm motility and fertilization issues. The presence of these autoantibodies, often found in infertile individuals, may indicate an autoimmune response against sperm and is a potential cause of immunologic infertility. SAGA-1 is a sperm-specific glycoform of CD52, a molecule on lymphocytes, and both can be targeted by the immune system, leading to infertility.

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14	SP-17	Sperm protein 17	Q15506	SPA17	Sperm Protein 17 (SP17) autoantibodies are linked to male infertility, acting as a potential biomarker, as these antibodies target SP17, a protein crucial for sperm function, potentially hindering sperm movement (motility) and fertilization, especially when inflammation or trauma (like vasectomy) triggers their production, though ARTs like ICSI can help overcome these issues.
15	SPAG1	Sperm-associated antigen 1	Q07617	SPAG1	A sperm-associated antigen 1 autoantibody is an antibody directed against the Sperm-associated antigen 1 (SPAG1) protein, which can cause infertility. These autoantibodies are found in some infertile women and can lead to sperm agglutination, reduced motility, and impaired fertilization, as the SPAG1 protein is essential for sperm function and located on the mature sperm cell's membrane.
16	SPAT4	Spermatogenesis-associated protein 4	Q8NEY3	SPATA4	A spermatogenesis-associated protein 4 (SPATA4) autoantibody is an antibody that targets the SPATA4 protein, which is involved in protecting cells during the process of spermatogenesis. These autoantibodies could potentially affect fertility by interfering with sperm function or by being a marker for certain health conditions.
17	SPAT9	Spermatogenesis-associated protein 9	Q9BWV2	SPATA9	Spermatogenesis-associated protein 9 (SPATA9), also known as sperm-associated antigen 9 (SPAG9) or NYD-SP16, is a protein crucial for male fertility and is currently being researched as a potential autoantigen. The presence of autoantibodies targeting SPATA9 has been linked to male infertility and is a subject of ongoing scientific study, particularly in the context of autoimmune responses to infections like COVID-19
18	SPZ1	Spermatogenic leucine zipper protein 1	Q9BXG8	SPZ1	A spermatogenic leucine zipper protein 1 autoantibody likely contributes to infertility by potentially disrupting spermatogenesis. Autoantibodies targeting sperm proteins, including leucine zipper proteins, can reduce sperm quality, motility, and fertilization rates, leading to male immunological infertility.
19	TESK2	Dual specificity testis-specific protein kinase 2	Q96553	TESK2	Dual specificity testis-specific protein kinase 2 (TSSK2) is essential for male fertility and sperm function; the presence of autoantibodies targeting TSSK2 has been linked to male infertility, potentially triggered by infections such as COVID-19.
20	TG	Thyroglobulin	P01266	TG	Thyroglobulin autoantibodies (TgAbs) are associated with infertility and may negatively affect fertility outcomes by increasing the prevalence of unexplained infertility, polycystic ovary syndrome (PCOS), and recurrent pregnancy loss. The presence of these antibodies is common in infertile women and can be linked to reduced fertility, though the exact mechanisms are still being researched. Managing thyroid health is important for fertility, and current guidelines recommend testing for thyroid autoimmunity in women experiencing infertility.
21	TGM4	Transglutaminase 4 (TGM4)	P49221	TGM4	Transglutaminase 4 (TG4) autoantibodies are linked to male infertility, particularly in patients with autoimmune polyendocrine syndrome type 1 (APS1). These autoantibodies are a male-specific autoantigen that can compromise the function of TG4, a protein crucial for male fertility. The autoantibodies can cause a range of issues, including destructive prostatitis, reduced TG4 secretion, and impaired sperm function.
22	TPO	Thyroid peroxidase	P07202	TPO	TPO autoantibodies (Thyroid Peroxidase Antibodies) are linked to infertility, miscarriage, premature ovarian insufficiency, and reduced IVF success, even in euthyroid (normal thyroid function) women, indicating underlying immune dysfunction or direct damage to reproductive tissues. Their presence is associated with higher rates of unexplained infertility and endometriosis.
23	TSSK1	Testis-specific serine/threonine-protein kinase 1	Q9BXA7	TSSK1B	A testis-specific serine/threonine-protein kinase 1 (TSSK1) autoantibody is linked to male infertility because autoantibodies can attack TSSK1, a protein crucial for sperm maturation and function. The presence of these autoantibodies can disrupt normal spermatogenesis, leading to reduced sperm quality, motility, or function, and potentially causing infertility
24	TTG	Tissue Transglutaminase	P21980	TGM2	Tissue transglutaminase (tTG) antibodies are associated with infertility and recurrent miscarriages, often as a marker for the autoimmune disease celiac disease. These antibodies may cause infertility by damaging the small intestine, hindering nutrient absorption, and interfering with reproductive processes like endometrial angiogenesis. For women with unexplained infertility, screening for celiac disease via tTG antibodies is recommended, and a gluten-free diet may improve fertility outcomes.
25	ANA	Nuclear antigen			Antinuclear Antibody (ANA) are autoantibodies targeting the cell nucleus. A positive ANA test is linked to infertility, lower IVF success, and higher miscarriage risk, potentially by harming egg/embryo quality or disrupting implantation, often indicating an underlying autoimmune issue that may benefit from treatments like low-dose steroids, aspirin, or hydroxychloroquine to improve reproductive outcomes. While ANA alone doesn't diagnose disease, it signals immune dysregulation affecting fertility, making screening important in unexplained infertility cases.
26		Ig control 1			
27		Ig control 2			
28		Ig control 3			
29		Ig control 4			
30		anti-Ig control 1			
31		anti-Ig control 2			
32		anti-Ig control 3			
33		anti-Ig control 4			