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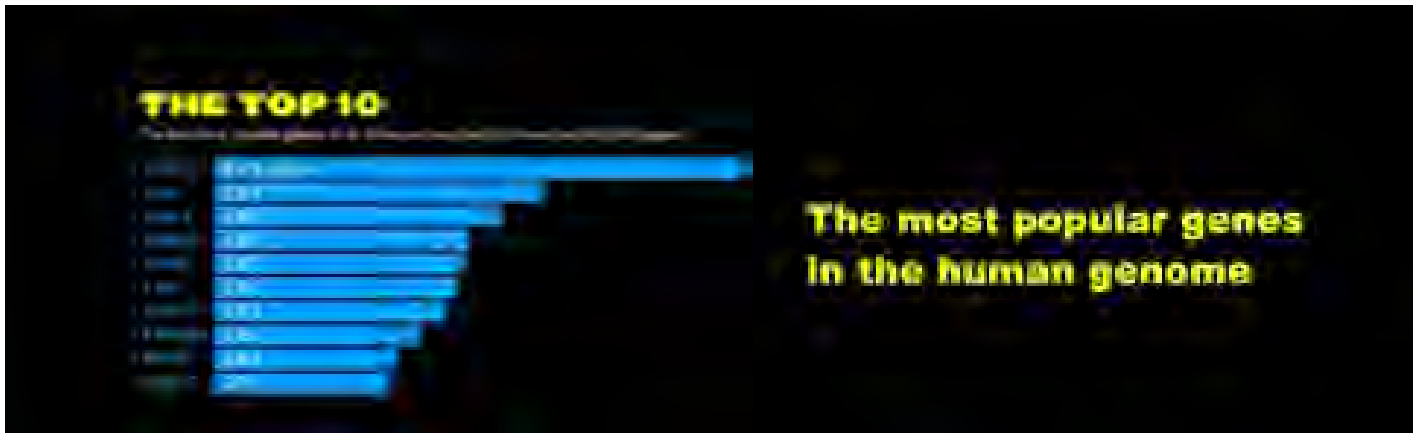
**BIOLOGIA  
MOLECOLARE**

**ANTIBODIES  
& ELISA KIT  
FOR TOP 10 GENES**

*La scelta logica*

# > TOP 10 GENES

22 November 2017, Nature News released a list of the most studied genes in the past 50 years - a sort of 'top hits' of the human genome. The TOP10 includes **TP53, TNF, EGFR, VEGFA, APOE, IL6, TGFB1, MTHFR, ESR1, AKT1**.



The U.S. National Library of Medicine (NLM) has launched a project since 2002: they have marked the articles involving the structure and function of genes (or their encoding proteins) in PubMed database, and a total of 565,000 references covering 27,000 human genes (including RNA genes and pseudogenes) have been analyzed.

Peter Kerpedjiev, a postdoctoral fellow at Harvard Medical School who is committed to studying genomic data visualization summarized a special list from this work: 10 of the most studied genes. The number of academic papers related to these genes is well over 40,000. It reveals an important trend in biomedical research, and suggests the dominance of the 10 genes in the field of interdiscipline and disease.

**Elabscience**<sup>®</sup> has selected a detailed catalogue of antibodies and ELISA kits related to the TOP10 genes. Click the links below and see what we can do for your research.

- |                 |                 |
|-----------------|-----------------|
| 1) <b>TP53</b>  | 6) <b>IL6</b>   |
| 2) <b>TNF</b>   | 7) <b>TGFB1</b> |
| 3) <b>EGFR</b>  | 8) <b>MTHFR</b> |
| 4) <b>VEGFA</b> | 9) <b>ESR1</b>  |
| 5) <b>APOE</b>  | 10) <b>AKT1</b> |

# TP53

**TP53** (Tumor Protein P53) encodes a tumor suppressor protein with transcriptional activation, DNA binding and oligomerization domains. The protein can respond to diverse cellular stress to regulate the expression of the target gene, and induce cell cycle arrest, apoptosis, senescence, DNA repair or metabolic changes. In cell cycle regulation, it acts as a trans-activator that negatively regulates cell division by controlling a set of genes required for this process. Mutations in this gene are associated with a variety of human cancers, including hereditary cancers such as Li-Fraumeni syndrome. The relevant pathways are DNA damage and ovarian tumor domain proteases.

Cat. NO	Product Name	Reactivity
E-EL-M1215	Mouse TP53(Tumor Protein p53) ELISA Kit	Mouse
E-EL-R1042	Rat TP53(Tumor Protein p53) ELISA Kit	Rat
E-AB-32467	p53 Polyclonal Antibody	Human, Monkey
E-AB-32468	p53 Polyclonal Antibody	Human, Mouse, Rat, Monkey
E-AB-32469	p53 Polyclonal Antibody	Human, Mouse, Rat
E-AB-32470	p53 Polyclonal Antibody	Human, Monkey
E-AB-32471	p53 Polyclonal Antibody	Human, Monkey
E-AB-32472	p53 Polyclonal Antibody	Human, Mouse, Rat
E-AB-32474	p53 Polyclonal Antibody	Human, Mouse, Rat
E-AB-32475	p53 Polyclonal Antibody	Human, Rat, Monkey
E-AB-32476	p53 Polyclonal Antibody	Human
E-AB-33611	p53 Polyclonal Antibody	Human
E-AB-30249	p53 Polyclonal Antibody	Human, Mouse, Rat
E-AB-30250	p53 Polyclonal Antibody	Human
E-AB-30251	p53 Polyclonal Antibody	Human
E-AB-32465	p53 Polyclonal Antibody	Human, Monkey
E-AB-32466	p53 Polyclonal Antibody	Human, Mouse, Rat, Monkey
E-AB-32473	p53 Polyclonal Antibody	Human
E-AB-33610	p53 Polyclonal Antibody	Human
E-AB-10056	TP53 Polyclonal Antibody	Human
E-AB-22015	p53 Monoclonal Antibody	Human
E-AB-27286	P53 Monoclonal Antibody	Human, Mouse, Rat
E-AB-30091	Di-Methyl-p53 (Lys370) Polyclonal Antibody	Human
E-AB-20226	Acetyl-p53 (Lys370) Polyclonal Antibody	Human
E-AB-20227	Acetyl-p53 (Lys372) Polyclonal Antibody	Human
E-AB-20237	Acetyl-p53 (Lys373) Polyclonal Antibody	Human
E-AB-20238	Acetyl-p53 (Lys382) Polyclonal Antibody	Human
E-AB-20242	Acetyl-p53 (Lys320) Polyclonal Antibody	Human
E-AB-20951	Phospho-p53 (Ser15) Polyclonal Antibody	Human, Rat
E-AB-20952	Phospho-p53 (Ser20) Polyclonal Antibody	Human, Mouse, Rat, Monkey
E-AB-20953	Phospho-p53 (Ser315) Polyclonal Antibody	Human
E-AB-20954	Phospho-p53 (Ser33) Polyclonal Antibody	Human
E-AB-20955	Phospho-p53 (Ser46) Polyclonal Antibody	Human, Monkey
E-AB-20956	Phospho-p53 (Ser6) Polyclonal Antibody	Human, Monkey
E-AB-20957	Phospho-p53 (Ser9) Polyclonal Antibody	Human, Monkey
E-AB-20958	Phospho-p53 (Thr18) Polyclonal Antibody	Human, Mouse, Rat
E-AB-20999	Phospho-p53 (Ser37) Polyclonal Antibody	Human
E-AB-20287	Acetyl-p53 (Lys381) Polyclonal Antibody	Human, Mouse, Rat
E-AB-50004	Mono-Methyl-P53 (Lys370) Monoclonal Antibody	Human, Mouse, Rat
E-AB-50001	Mono-Methyl-p53 (Lys370) Polyclonal Antibody	Human
E-AB-20299	Acetyl-p53 (Lys305) Polyclonal Antibody	Human
E-AB-21221	Phospho-p53 (Ser366) Polyclonal Antibody	Human

## > TNF

**TNF** (Tumor Necrosis Factor) encodes a multifunctional proinflammatory cytokine belonging to the tumor necrosis factor superfamily. It is mainly secreted by macrophages and can induce cell death in certain tumor cell lines. This protein can act by binding to its receptors TNFRSF1A / TNFR1 and TNFRSF1B / TNFBR. This cytokine is involved in the regulation of a wide range of biological processes, including cell proliferation, differentiation, apoptosis, lipid metabolism and coagulation. It involves a variety of diseases, including autoimmune diseases, insulin resistance, migraine, asthma and cancer. Studies in TNF knockout mice have also shown that this cytokine has neuroprotective properties. Its related pathways are the hematopoietic cell line and the cytokine receptor gamma-chain family signaling pathways.

Cat. NO	Product Name	Reactivity
E-EL-H0109	Human TNF- $\alpha$ (Tumor Necrosis Factor Alpha) ELISA Kit	Human
E-EL-H2306	Human TNF- $\beta$ (Tumor Necrosis Factor Beta) ELISA Kit	Human
E-EL-M0049	Mouse TNF- $\alpha$ (Tumor Necrosis Factor Alpha) ELISA Kit	Mouse
E-EL-M1210	Mouse TNF- $\beta$ (Tumor Necrosis Factor Beta) ELISA Kit	Mouse
E-EL-R0019	Rat TNF- $\alpha$ (Tumor Necrosis Factor Alpha) ELISA Kit	Rat
E-EL-R1037	Rat TNF- $\beta$ (Tumor Necrosis Factor Beta) ELISA Kit	Rat
E-AB-40015	TNF- $\alpha$ Polyclonal Antibody	Human, Mouse, Rat
E-AB-40020	TNF- $\alpha$ Polyclonal Antibody	Mouse
E-AB-33121	TNF- $\alpha$ Polyclonal Antibody	Human, Mouse, Rat
E-AB-33421	TNF- $\alpha$ Polyclonal Antibody	Human
E-AB-33122	TNF- $\beta$ Polyclonal Antibody	Human, Mouse, Rat, Monkey
E-AB-14408	TNF Polyclonal Antibody	Human
E-AB-22116	TNF $\alpha$ Monoclonal Antibody	Human, Mouse, Rat
E-AB-27380	TNF $\alpha$ Monoclonal Antibody	Human, Mouse, Rat
E-AB-1368	LE/AF Purified Anti-Mouse TNF $\alpha$ Monoclonal Antibody	Mouse
E-AB-1373	LE/AF Purified Anti-Mouse TNF $\alpha$ Monoclonal Antibody	Mouse

## > EGFR

**EGFR** (Epidermal Growth Factor Receptor) is a transmembrane glycoprotein that belongs to the member of the protein kinase superfamily. This protein is a receptor of the epidermal growth factor family and binds to it. Its binding to the ligand induces dimerization and tyrosine autophosphorylation and leads to cell proliferation. EGFR is widely recognized for its importance in cancer. Overexpression and mutation of proteins have proven to be the key to driving the development of many cancers. Its role in non-small cell lung cancer, glioblastoma and basal-like breast cancer has promoted the research and development of many related drugs. The relevant pathways are transcription androgen receptor nuclear signaling and arrhythmogenic right ventricular cardiomyopathy (ARVC).

Cat. NO	Product Name	Reactivity
E-EL-H0060	Human EGFR (Epidermal Growth Factor Receptor) ELISA Kit Human	Human
E-EL-M2441	Mouse EGFR (Epidermal Growth Factor Receptor) ELISA Kit Mouse	Mouse
E-EL-R2386	EGFR Polyclonal Antibody	Rat
E-AB-31281	EGFR Polyclonal Antibody	Human, Mouse, Rat
E-AB-31284	EGFR Polyclonal Antibody	Human, Mouse, Rat
E-AB-31285	EGFR Polyclonal Antibody	Human, Mouse, Rat
E-AB-31286	EGFR Polyclonal Antibody	Human, Mouse, Rat
E-AB-31288	EGFR Polyclonal Antibody	Human, Mouse
E-AB-31291	EGFR Polyclonal Antibody	Human, Mouse, Rat
E-AB-31289	EGFR Polyclonal Antibody	Human, Mouse, Rat
E-AB-31290	EGFR Polyclonal Antibody	Human, Mouse, Rat
E-AB-31280	EGFR Polyclonal Antibody	Human, Mouse, Rat
E-AB-31282	EGFR Polyclonal Antibody	Human, Mouse, Rat

Cat. NO	Product Name	Reactivity
E-AB-31283	EGFR Polyclonal Antibody	Human, Mouse, Rat
E-AB-31287	EGFR Polyclonal Antibody	Human, Mouse, Rat
E-AB-12385	EGFR Polyclonal Antibody	Human, Mouse
E-AB-15615	EGFR Polyclonal Antibody	Human, Mouse
E-AB-22007	EGFR Monoclonal Antibody	Human
E-AB-22075	EGFR Monoclonal Antibody	Human
E-AB-27677	EGFR Monoclonal Antibody	Human
E-AB-20859	Phospho-EGFR (Tyr1092) Polyclonal Antibody	Human, Mouse, Rat
E-AB-20860	Phospho-EGFR (Tyr1110) Polyclonal Antibody	Human, Mouse, Rat
E-AB-20862	Phospho-EGFR (Tyr1197) Polyclonal Antibody	Human, Mouse, Rat
E-AB-21098	Phospho-EGFR (Thr678) Polyclonal Antibody	Human, Mouse, Rat, Monkey
E-AB-20861	Phospho-EGFR (Tyr1172) Polyclonal Antibody	Human, Mouse, Rat
E-AB-20863	Phospho-EGFR (Tyr869) Polyclonal Antibody	Human, Mouse, Rat
E-AB-21036	Phospho-EGFR (Tyr1069) Polyclonal Antibody	Human, Mouse, Rat, Monkey
E-AB-20858	Phospho-EGFR (Thr693) Polyclonal Antibody	Human, Mouse, Rat
E-AB-21060	Phospho-EGFR (Ser695) Polyclonal Antibody	Human, Mouse, Rat
E-AB-21276	Phospho-EGFR (Tyr1016) Polyclonal Antibody	Human, Mouse, Rat

## > VEGFA

**VEGFA** (Vascular Endothelial Growth Factor A) is a member of the PDGF / VEGF growth factor family. It encodes a heparin-binding protein that exists as a disulfide-linked homodimer. This growth factor plays a role in angiogenesis, vasculogenesis and endothelial cell growth, and can induce endothelial cell proliferation, promotes cell migration, inhibits apoptosis and induces vascular permeability, both of which are essential for physiological and pathological angiogenesis. The disruption of this gene in mice leads to abnormal embryonic vascularization. This gene is upregulated in many known tumors, whose expression is correlated with tumor stage and progression. Its related pathways are response to platelet cytoplasmic Ca<sup>2+</sup> and cell adhesion-plasmin signaling.

Cat. NO	Product Name	Reactivity
E-EL-H0111	Human VEGF-A (Vascular Endothelial Cell Growth Factor A) ELISA Kit	Human
E-EL-R2603	Rat VEGF-A (Vascular Endothelial Cell Growth Factor A) ELISA Kit	Rat
E-AB-40004	VEGFA Polyclonal Antibody	Rat
E-AB-12675	VEGFA Polyclonal Antibody	Human
E-AB-11647	VEGFA Polyclonal Antibody	Human
E-AB-33378	VEGF-A Polyclonal Antibody	Human
E-AB-34220	VEGF-A Polyclonal Antibody	Human, Mouse, Rat

## > APOE

**APOE** (Apolipoprotein E) is the major apoprotein of chylomicron. It binds to specific liver and peripheral cell receptors, mediating the binding, internalization and catabolism of lipoprotein particles. It acts as a ligand for the LDL (apo-B / E) receptor as well as a ligand for liver-specific apo-E receptor (chylomicron remnants), and is essential for regulates the normal catabolism of triglyceride-rich lipoprotein components. Mutations in this gene result in familial dysbetalipoproteinemia or type III hyperlipoproteinemia (HLP III), in which elevated plasma cholesterol and triglycerides are a result of impaired clearance of chylomicron and VLDL residuals. The relevant pathways are statin pathway and metabolism.

Cat. NO	Product Name	Reactivity	Price
E-EL-H0470	Human ApoE (Apolipoprotein E) ELISA Kit	Human	€ 00,00
E-EL-M0135	Mouse ApoE (Apolipoprotein E) ELISA Kit	Mouse	€ 00,00
E-EL-R1230	Rat ApoE (Apolipoprotein E) ELISA Kit	Rat	€ 00,00
E-AB-30530	ApoE Polyclonal Antibody	Human, Mouse, Rat	€ 00,00
E-AB-30531	ApoE Polyclonal Antibody	Human	€ 00,00

## > IL6

**IL6** (Interleukin 6) encodes a cytokine that functions in inflammation and maturation of B cells with multiple biological functions. This protein is produced primarily at acute and chronic inflammatory sites where it is secreted into the serum and induces transcriptional inflammatory responses through interleukin 6 receptor alpha. Plays an important role in the final differentiation of B cells into immunoglobulin-secreting cells. Involved in lymphocytes and monocyte differentiation and plays a role in T cells, hepatocytes, hematopoietic progenitor cells and central nervous system cells. In addition, IL6 has been shown to be an endogenous pyrogen and can induce fever in people with autoimmune diseases or infections. The function of this gene involves a variety of inflammation-related diseases, including diabetes and systemic juvenile rheumatoid arthritis. Its related pathways are transcription androgen receptor nuclear signaling and hematopoietic cell lineage.

Cat. NO	Product Name	Reactivity
E-EL-H0102	Human IL6 (Interleukin 6) ELISA Kit	Human
E-EL-M0044	Mouse IL6 (Interleukin 6) ELISA Kit	Mouse
E-EL-R0015	Rat IL6 (Interleukin 6) ELISA Kit	Rat
E-AB-40021	IL6 Polyclonal Antibody	Mouse
E-AB-40073	IL6 Polyclonal Antibody	Mouse, Rat
E-AB-30095	IL6 Polyclonal Antibody	Human
E-AB-27213	IL6 Monoclonal Antibody	Human
E-AB-1355	LE/AF Purified Anti-Mouse IL-6 Monoclonal Antibody	Mouse

## > TGFB1

**TGFB1** (Transforming Growth Factor  $\beta$ 1) encodes a secreted ligand of the TGF- $\beta$  superfamily. The protein has the function of regulating cell proliferation, differentiation and growth. Many cells synthesize TGFB1 and have specific receptors. This gene can regulate the expression and activation of other growth factors, including interferon gamma and tumor necrosis factor alpha. It plays an important role in bone remodeling because it is a potent stimulator of osteoblastic bone formation, causing chemotaxis, proliferation and differentiation in committed osteoblasts. This gene often up-regulates expression in tumor cells and its mutations lead to Camurati-Engelmann disease. Its related pathways are response to platelet cytosolic Ca<sup>2+</sup> and transcriptional androgen receptor nuclear signaling.

Cat. NO	Product Name	Reactivity
E-AB-40002	TGFB1 Polyclonal Antibody	Mouse
E-AB-10643	TGFB1 Polyclonal Antibody	Human, Mouse, Rat
E-AB-14399	TGFB1 Polyclonal Antibody	Human, Mouse, Rat

## > MTHFR

**MTHFR** (Methylenetetrahydrofolate Reductase) is capable of catalyzing the conversion of 5,10-methylenetetrahydrofolate to 5-methyltetrahydrofolate, a co-substrate for the re-methylation of homocysteine to methionine. The genetic variation of this gene affects the susceptibility to occlusive vascular disease, neural tube defects, colon cancer and acute leukemia, and mutations in this gene are associated with methylenetetrahydrofolate reductase deficiency. The relevant pathways are folate-alcohol metabolism and cancer pathway.

Cat. NO	Product Name	Reactivity
E-AB-32126	MTHFR Polyclonal Antibody	Human, Mouse, Monkey

## > ESR1

**ESR1** (Estrogen Receptor 1) encodes an estrogen receptor that is a ligand-activated transcription factor composed of several domains important for hormone binding, DNA binding and activation of transcription. The protein localizes in the nucleus where it may form a homodimer or a heterodimer with estrogen receptor 2 and affect cellular proliferation and differentiation in target tissues. Estrogen and its receptors are essential for sexual development and reproductive function, but are also responsible for the growth of the skeleton and for maintaining the normal function of the cardiovascular and nervous systems. Estrogen receptors are also involved in pathological processes including breast cancer, endometrial cancer and osteoporosis. Its related pathways include ovarian tumor domain proteases and cell cycle role of SCF complex in cell cycle regulation.

Cat. NO	Product Name	Reactivity
E-AB-14993	ESR1 Polyclonal Antibody	Human, Mouse, Monkey
E-AB-15624	ESR1 Polyclonal Antibody	Human, Mouse, Monkey

## > AKT1

**AKT1** is a serine / threonine protein kinase that has three closely related family members (AKT1, AKT2 and AKT3) that are involved in a variety of biological processes including metabolism, proliferation, cell survival, growth, insulin signaling and angiogenesis, etc., that are all mediated by serine and/or threonine phosphorylation of a series of downstream substrates. AKT activation relies on the PI3K pathway and is considered as a key node in this pathway. Mutations in the AKT1 have also been demonstrated to confer resistance to allosteric kinase inhibitors in vitro. To date more than 100 substrate candidates for AKT1 have been reported. The relevant pathways are transcription androgen receptor nuclear signaling and E-cadherin signaling in keratinocytes.

Cat. NO	Product Name	Reactivity
E-AB-30461	Akt1 Polyclonal Antibody	Human, Mouse, Rat
E-AB-30464	Akt1 Polyclonal Antibody	Human, Mouse, Rat
E-AB-30467	Akt1 Polyclonal Antibody	Human, Mouse, Rat
E-AB-30472	Akt1/3 Polyclonal Antibody	Human, Mouse, Rat
E-AB-30466	Akt1 Polyclonal Antibody	Human, Mouse, Rat
E-AB-30468	Akt1 Polyclonal Antibody	Human, Mouse, Rat
E-AB-30469	Akt1 Polyclonal Antibody	Human, Mouse, Rat
E-AB-30470	Akt1 Polyclonal Antibody	Human, Mouse, Rat
E-AB-40032	Akt1 Polyclonal Antibody	Human, Mouse, Rat
E-AB-13800	Akt1 Polyclonal Antibody	Human, Mouse, Rat
E-AB-10038	Akt1 Polyclonal Antibody	Human, Mouse, Rat
E-AB-27011	Akt1/3 Polyclonal Antibody	Human, Mouse, Rat
E-AB-20801	Phospho-Akt1 (Ser246) Polyclonal Antibody	Human, Mouse, Rat
E-AB-20804	Phospho-Akt1 (Thr450) Polyclonal Antibody	Human, Mouse, Rat
E-AB-21186	Phospho-Akt1 (Tyr474) Polyclonal Antibody	Human, Mouse, Rat, Monkey
E-AB-21187	Phospho-Akt1 (Thr72) Polyclonal Antibody	Human, Mouse, Rat
E-AB-21021	Phospho-Akt1 (Ser129) Polyclonal Antibody	Human, Mouse, Rat
E-AB-21222	Phospho-Akt1/3 (Tyr437/434) Polyclonal Antibody	Human, Mouse, Rat



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