



生物信息学

第2讲 常用数据库介绍 (1)

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生物信息学基本概念

生物信息学的诞生和发展

人类基因组计划（HGP）

生物信息学的研究内容和方向及其应用

三大数据库介绍

NCBI-Genbank-Entrez-PubMed使用介绍



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NCBI-Genbank-Entrez-PubMed使用

Q1：细胞凋亡相关的文献有多少篇？

Q2：今年在三大顶级期刊上有关于肿瘤细胞凋亡的研究报道吗？



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NCBI-Genbank-Entrez-PubMed使用

Q1: 细胞凋亡相关的文献有多少篇？

Cell apoptosis

=> **apoptosis**

=>名词形式

=>是否有其他词性？

=>是否有其他同义词？

=>查词典（金山词霸、谷歌翻译等）

=> **apoptosis + apoptotic**

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PubMed apoptosis OR apoptotic Search Help

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Best matches for apoptosis OR apoptotic:

Apoptosis and molecular targeting therapy in cancer.
Hassan M et al. Biomed Res Int. (2014)

An Apoptotic 'Eat Me' Signal: Phosphatidylserine Exposure.
Segawa K et al. Trends Cell Biol. (2015)

Vitamin D-mediated apoptosis in cancer and obesity.
Sergeev IN et al. Horm Mol Biol Clin Investig. (2014)

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1. Wang Z, Wang X, Zhou H, Dan X, Jiang L, Wu Y. Long non-coding RNA CASC2 inhibits tumorigenesis via the miR-181a/PLXNC1 axis in melanoma. Acta Biochim Biophys Sin (Shanghai). 2018 Mar 5. doi: 10.1093/abbs/gmx148. [Epub ahead of print] PMID: 29514220 Similar articles

2. Walls SM, Cammarato A, Chatfield DA, Ocorr K, Harris GL, Bodmer R. Ceramide-Protein Interactions Modulate Ceramide-Associated Lipotoxic Cardiomyopathy. Cell Rep. 2018 Mar 6;22(10):2702-2715. doi: 10.1016/j.celrep.2018.02.034. PMID: 29514098 Similar articles

3. Amin SA, Adhikari N, Jha T. Structure-activity relationships of HDAC8 inhibitors: Non-hydroxamates as anticancer agents.

Titles with your search terms

Protective effect of α-mangostin against CoCl₂-induced apoptosis by supp [Mol Med Rep. 2018]

Inhibition of autophagy promotes cisplatin-induced apoptotic cell deat [Mol Med Rep. 2018]

MicroRNA-29c inhibits proliferation and promotes apoptosis in non-small cell [Mol Med Rep. 2018]

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1. [Tea polyphenols induce S phase arrest and apoptosis in gallbladder cancer cells.](#)
Wang J, Pan Y, Hu J, Ma Q, Xu Y, Zhang Y, Zhang F, Liu Y.
Braz J Med Biol Res. 2018 Mar 1;51(4):e6891. doi: 10.1590/1414-431X20176891.
PMID: 29513793
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2. [Polydatin inhibits cell proliferation, invasion and migration, and induces cell apoptosis in hepatocellular carcinoma.](#)
Jiao Y, Wu Y, Du D.
Braz J Med Biol Res. 2018 Mar 1;51(4):e6867. doi: 10.1590/1414-431X20176867.
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3. [Chloroquine augments TRAIL-induced apoptosis and induces G2/M phase arrest in human pancreatic cancer cells.](#)
Monma H, Iida Y, Moritani T, Okimoto T, Tanino R, Tajima Y, Harada M.
PLoS One. 2018 Mar 7;13(3):e0193990. doi: 10.1371/journal.pone.0193990. eCollection 2018.
PMID: 29513749
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4. [Protective effects of tetrahydropalmatine against ketamine-induced learning and memory injury via antioxidative, anti-inflammatory and anti-apoptotic mechanisms in mice.](#)
Zhang Y, Sha R, Wang K, Li H, Yan B, Zhou N.
Mol Med Rep. 2018 Mar 7. doi: 10.3892/mmr.2018.8700. [Epub ahead of print]
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Inhibition of autophagy promotes cisplatin-induced apoptotic cell deat [Mol Med Rep. 2018]

MicroRNA-29c inhibits proliferation and promotes apoptosis in non-small cell [Mol Med Rep. 2018]

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Long non-coding RNA CASC2 inhibits tumorigenesis via the miR-181a/PLXNC1 axis in melanoma.
1. Wang Z, Wang X, Zhou H, Dan X, Jiang L, Wu Y. Acta Biochim Biophys Sin (Shanghai). 2018 Mar 5. doi: 10.1093/abbs/gmx148. [Epub ahead of print] PMID: 29514220 Similar articles

Ceramide-Protein Interactions Modulate Ceramide-Associated Lipotoxic Cardiomyopathy.
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Structure-activity relationships of HDAC8 inhibitors: Non-hydroxamates as anticancer agents.
3. Amin SA, Adhikari N, Jha T. Pharmacol Res. 2018 Mar 4. pii: S1043-6618(17)31425-1. doi: 10.1016/j.phrs.2018.03.001. [Epub ahead of print] Review. PMID: 29514055 Similar articles

Efficacy of phosphocreatine pre-administration on XIAP and Smac in ischemic penumbra of rats with focal cerebral ischemia reperfusion injury.
4. Wang W, Wang Q, Yu W, Chen L, Li Z. Acta Cir Bras. 2018 Feb;33(2):117-124. doi: 10.1590/s0102-86502018002000003. PMID: 29513810 Similar articles



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NCBI-Genbank-Entrez-PubMed使用

Q1: 细胞凋亡相关的文献有多少篇?

apoptosis OR apoptotic => 387502

apoptosis[ti] OR apoptotic[ti] => 109680

apoptosis[tiab] OR apoptotic[tiab] => 343086

apopto*[tiab] => 343573

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Apply knowledge of
microbial functional
capabilities

NCBI-Genbank-Entrez-PubMed使用

Q2: 今年在三大顶级期刊上有关于肿瘤细胞凋亡的研究报道吗？

- 今年=> 2018[DP]
- 三大顶级期刊 (CNS) => cell[TA] OR nature[TA] OR science[TA]
- 肿瘤=> cancer*[tiab] OR tumor*[tiab] OR tumour*[tiab] OR carcino*[tiab] OR *blastoma*[tiab] OR leukemia*[tiab] OR lymphoma*[tiab]
- 凋亡=> apopto*[tiab], apoptosis[tiab] OR apoptotic[tiab]
- =>2018[DP] (cell[TA] OR nature[TA] OR science[TA]) (cancer*[tiab] OR tumor*[tiab] OR tumour*[tiab] OR carcino*[tiab] OR *blastoma*[tiab] OR leukemia*[tiab] OR lymphoma*[tiab]) apopto*[tiab]



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- [A Non-catalytic Function of SETD1A Regulates Cyclin K and the DNA Damage Response.](#)
 1. Hoshii T, Cifani P, Feng Z, Huang CH, Koche R, Chen CW, Delaney CD, Lowe SW, Kentsis A, Armstrong SA. **Cell**. 2018 Feb 22;172(5):1007-1021.e17. doi: 10.1016/j.cell.2018.01.032. PMID: 29474905 [Similar articles](#)
- [Tissue-selective effects of nucleolar stress and rDNA damage in developmental disorders.](#)
 2. Calo E, Gu B, Bowen ME, Aryan F, Zalc A, Liang J, Flynn RA, Swigut T, Chang HY, Attardi LD, Wysocka J. **Nature**. 2018 Feb 1;554(7690):112-117. doi: 10.1038/nature25449. Epub 2018 Jan 24. PMID: 29364875 [Similar articles](#)
- [Pharmacological activation of REV-ERBs is lethal in cancer and oncogene-induced senescence.](#)
 3. Sulli G, Rommel A, Wang X, Kolar MJ, Puca F, Saghatelian A, Plikus MV, Verma IM, Panda S. **Nature**. 2018 Jan 18;553(7688):351-355. doi: 10.1038/nature25170. Epub 2018 Jan 10. PMID: 29320480 [Similar articles](#)
- [R-2HG Exhibits Anti-tumor Activity by Targeting FTO/m⁶A/MYC/CEBPA Signaling.](#)
 4. Su R, Dong L, Li C, Nachtergael S, Wunderlich M, Qing Y, Deng X, Wang Y, Weng X, Hu C, Yu M, Skibbe J, Dai Q, Zou D, Wu T, Yu K, Weng H, Huang H, Ferchen K, Qin X, Zhang B, Qi J, Sasaki AT, Plas DR, Bradner JE, Wei M, Marcucci G, Jiang X, Mulloy JC, Jin J, He C, Chen J. **Cell**. 2018 Jan 11;172(1-2):90-105.e23. doi: 10.1016/j.cell.2017.11.031. Epub 2017 Dec 14. PMID: 29249359 [Similar articles](#)

specific roles, they often work together in the cell as protein machines.

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 cancer (391) [MeSH](#)

 tumor (647) [MeSH](#)



GENOMES to LIFE

BIOLOGICAL SOLUTIONS FOR ENERGY CHALLENGES



如何找到一个基因的相关信息? 【Genbank的Gene数据库】

Genes and other DNA sequences contain instructions on how and when to build proteins



Proteins perform many of life's most essential functions. To carry out their specific roles, they often work together in the cell as protein machines.

goal
IDENTIFY PROTEIN MACHINES

CAPABILITIES TO UNDERSTAND COMPLEX BIOLOGICAL SYSTEMS

WORKING CELL

Many protein machines interact through complex interconnected pathways. Analyzing these dynamic processes will lead to models of life processes.

goal
CHARACTERIZE GENE REGULATORY NETWORKS

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Submissions: Submit data to GenBank or other NCBI databases

Genotypes and Phenotypes

Data from Genome Wide Association studies that link genes and diseases. See study variables, protocols, and analysis.

http://www.ncbi.nlm.nih.gov/

选择Gene数据库，不要输入任何关键词，直接点击“Search”按钮，可以进入Gene数据库主页

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NCBI Announcements

New version of Genome Workbench available

06 Sep 2012



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Welcome to Gene

Gene integrates information from a wide range of species. A record may include nomenclature, Reference Sequences (RefSeqs), maps, pathways, variations, phenotypes, and links to genome-, phenotype-, and locus-specific resources worldwide.

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PROTEINS

Proteins perform many of life's most essential functions. To carry out their specific roles, they often work together in the cell as protein machines.

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DEVELOP
COMPUTATIONAL
CAPABILITIES
TO UNDERSTAND
COMPLEX
BIOLOGICAL
SYSTEMS

goal
CHARACTERIZE GENE
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WORKING

Many protein machines interact through complex interconnected pathways. Analyzing these dynamic processes will lead to models of life processes.

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某个/类基因 (oncogene)

某种疾病 (lung cancer)

某个生物学过程 (vasculogenesis)

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GenBank >> Gene >> Search for “oncogene”

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[rab1a](#)

1. **Official Symbol:** rab1a and **Name:** RAB1A, member RAS oncogene family [*Danio rerio*]
Other Aliases: zC101N13.3, RAB1B, RAS, fb53a02, **oncogene**, si:zc101n13.3, wufb53a02
Other Designations: ras-related protein Rab-1A
Chromosome: 13
Annotation: Chromosome 13, NC_007124.5 (24626318..24635851)
ID: 368883
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2. **Oncogene OVC (ovarian adenocarcinoma oncogene) [Homo sapiens]**
This record was replaced with [GeneID: 6765](#)
ID: 8004

[ERBB2](#)

3. **Official Symbol:** ERBB2 and **Name:** v-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived **oncogene homolog (avian)** [*Homo sapiens*]
Other Aliases: CD340, HER-2, HER-2/neu, HER2, MLN 19, NEU, NGL, TKR1
Other Designations: c-erb B2/neu protein; herstatin; metastatic lymph node gene 19 protein; neuroblastoma/glioblastoma derived **oncogene homolog**; p185erbB2; proto-**oncogene Neu**; proto-**oncogene c-ErbB-**

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Other Designations: ras-related protein Rab-1A
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Other Designations: c-erb B2/neu protein; herstatin; metastatic lymph node gene 19 protein; neuroblastoma/glioblastoma derived **oncogene** homolog; p185erbB2; proto-**oncogene** Neu; proto-**oncogene** c-ErbB-

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Other Designations: c-erb B2/neu protein; herstatin; metastatic lymph node gene 19 protein; neuroblastoma/glioblastoma derived **oncogene homolog**; p185erbB2; proto-**oncogene Neu**; proto-**oncogene c-ErbB-**

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Other Designations: ras-related protein Rab-1A

Chromosome: 13

Annotation: Chromosome 13, NC_007124.5 (24626318..24635851)

ID: 368883

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OVC

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ERBB2

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Other Designations: c-erb B2/neu protein; herstatin; metastatic lymph node gene 19 protein; neuroblastoma/glioblastoma derived **oncogene homolog**; p185erbB2; proto-**oncogene Neu**; proto-**oncogene c-ErbB-**

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[CHRNA3](#)

1. **Official Symbol:** CHRNA3 and **Name:** cholinergic receptor, nicotinic, alpha 3 (neuronal) [*Homo sapiens*]
Other Aliases: LNCR2, NACHRA3, PAOD2
Other Designations: cholinergic receptor, nicotinic, alpha polypeptide 3; neuronal acetylcholine receptor subunit alpha-3; neuronal nicotinic acetylcholine receptor, alpha3 subunit
Chromosome: 15; **Location:** 15q24
Annotation: Chromosome 15, NC_000015.9 (78885394..78913637, complement)
MIM: 118503
ID: 1136
Order cDNA clone

[CHRNA5](#)

2. **Official Symbol:** CHRNA5 and **Name:** cholinergic receptor, nicotinic, alpha 5 (neuronal) [*Homo sapiens*]
Other Aliases: LNCR2
Other Designations: Cholinergic receptor, neuronal nicotinic, alpha polypeptide-5; acetylcholine receptor, nicotinic, alpha 5 (neuronal); neuronal acetylcholine receptor subunit alpha-5; neuronal nicotinic acetylcholine receptor, alpha5 subunit

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Genes Genomes (2580)
SNP GeneView (2011)
In Variation Viewer (550)

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▼ Top Organisms [Tree]
Homo sapiens (1205)
Mus musculus (250)
Macaca mulatta (125)
Bos taurus (122)
Pan troglodytes (121)
All other taxa (850)
More...



GenBank >> Gene >> Search for “lung cancer” >> CHRNA3 gene

Apply knowledge of microbial functional capabilities

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CHRNA3 cholinergic receptor, nicotinic, alpha 3 (neuronal) [*Homo sapiens*]

Gene ID: 1136, updated on 7-Sep-2012

Summary

Official Symbol CHRNA3 provided by [HGNC](#)

Official Full Name cholinergic receptor, nicotinic, alpha 3 (neuronal) provided by [HGNC](#)

Primary source [HGNC:1957](#)

See related [Ensembl:ENSG0000080644](#); [HPRD:07511](#); [MIM:118503](#); [Vega:OTTHUMG00000143863](#)

Gene type protein coding

RefSeq status REVIEWED

Organism [Homo sapiens](#)

Lineage Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Primates; Haplorrhini; Catarrhini; Hominidae; Homo

Also known as LNCR2; PAOD2; NACHRA3

Summary This locus encodes a member of the nicotinic acetylcholine receptor family of proteins. Members of this family of proteins form pentameric complexes comprised of both alpha and beta subunits. This locus encodes an alpha-type subunit, as it contains characteristic adjacent cysteine residues. The encoded protein is a ligand-gated ion channel that likely plays a role in neurotransmission. Polymorphisms in this gene have been associated with an increased risk of smoking initiation and an increased susceptibility to lung cancer. Alternatively spliced transcript variants have been described. [provided by RefSeq, life processes]

Nov 2009]

Proteins perform many of life's most essential functions. To carry out their specific roles, they often work together in the cell as protein machines.

URL: [DOEGenomesToLife.org](#)

10/02



GenBank >> Gene >> Search for “vasculogen*”

NCBI Resources How To

Gene Gene Save search Limits Advanced Help

Display Settings: Summary, 20 per page, Sorted by Relevance Send to: Filter your results:

Results: 1 to 20 of 370 Page 1 of 19

AGGF1

1. Official Symbol: AGGF1 and Name: angiogenic factor with G patch and FHA domains 1 [*Homo sapiens*]
Other Aliases: GPATC7, GPATCH7, HSU84971, HUS84971, VG5Q
Other Designations: G patch domain-containing protein 7; angiogenic factor VG5Q; vasculogenesis gene on 5q protein
Chromosome: 5; Location: 5q13.3
Annotation: Chromosome 5, NC_000005.9 (76326210..76361059)
MIM: 608464
ID: 55109
Order cDNA clone

LOC473268

2. similar to angiogenic factor VG5Q; **vasculogen***
This record was discontinued
ID: 473268

LOC473266

3. similar to angiogenic factor VG5Q; **vasculogenesis gene on 5q**; VG5Q protein [*Pan troglodytes*]
This record was discontinued
ID: 473266

vasculogen*

All (370) Current Only (364) Genes Genomes (362) SNP GeneView (306) In Variation Viewer (51) Manage Filters

Top Organisms [Tree]

Mus musculus (122)
Homo sapiens (99)
Rattus norvegicus (70)
Danio rerio (47)
Bos taurus (13)
All other taxa (19)
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Find related data

Database:



GenBank >> Gene >> Search for “vasculogen*”

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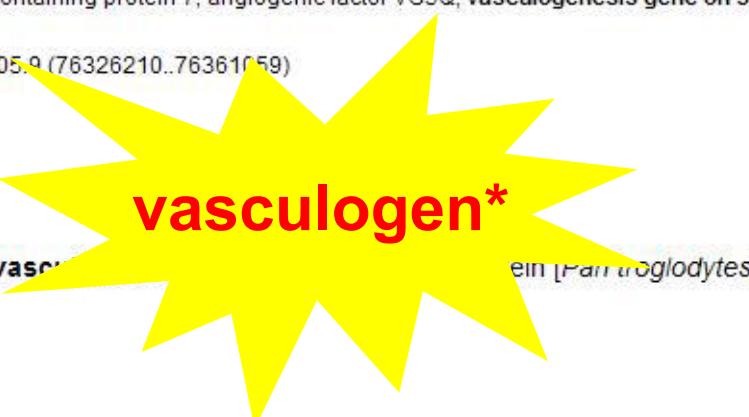
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More...

vasculogen*

不同物种基因数量差异意味着什么?



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All other taxa (19)

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不同物种基因数量差异意味着什么?



Gene

Gene



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Genome

GEO Profiles

AGGF1 angiogenic factor with G patch and FHA domains 1 [*Homo sapiens*]

Gene ID: 55109, updated on 10-Jul-2012

Summary

**Official Symbol** AGGF1 provided by HGNC**Official Full Name** angiogenic factor with G patch and FHA domains 1 provided by HGNC**Primary source** HGNC:24684**See related** Ensembl:ENSG00000164252; HPRD:07621; MIM:608464; Vega:OTTHUMG00000102132**Gene type** protein coding**RefSeq status** REVIEWED**Organism** *Homo sapiens***Lineage** Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Primates; Haplorrhini; Catarrhini; Hominidae; Homo**Also known as** VG5Q; GPATC7; GPATCH7; HSU84971; HUS84971**Summary** This gene encodes an angiogenic factor that promotes proliferation of endothelial cells. Mutations in this gene are associated with a susceptibility to Klippel-Trenaunay syndrome. Pseudogenes of this gene are found on chromosomes 3, 4, 10 and 16.[provided by RefSeq, Sep 2010]

Genomic context

**Location:** 5q13.3

See AGGF1 in Epigenomics, MapViewer

Sequence: Chromosome: 5; NC_000005.9 (76326210..76361059)

EST



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**HUGO Gene
Nomenclature
Committee**

<http://www.genenames.org/>

AGGF1 angiogenic factor with G patch and FHA domains 1 [*Homo sapiens*]

Gene ID: 55109, updated on 10-Jul-2012

SummaryOfficial Symbol AGGF1 provided by [HGNC](#)

Official Full Name angiogenic factor with G patch and FHA do

Primary source [HGNC:24684](#)See related [Ensembl:ENSG00000164252](#); [HPRD:07621](#); [MIM:608464](#); [Vega:OTTHOMG00000102132](#)

Gene type protein coding

RefSeq status REVIEWED

Organism [Homo sapiens](#)

Lineage Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Primates; Haplorrhini; Catarrhini; Hominidae; Homo

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Genomic context

Location: 5q13.3

See AGGF1 in [Epigenomics](#), [MapViewer](#)

Sequence: Chromosome: 5; NC_000005.9 (76326210..76361059)

EST

Chromosome 5 - NC_000005.9

[76145826]

[76444176]



Gene

Gene

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AGGF1 angiogenic factor with G patch and FHA domains 1 [*Homo sapiens*]

Gene ID: 55109, updated on 10-Jul-2012

Summary

**Official Symbol** AGGF1 provided by HGNC**Official Full Name** angiogenic factor with G patch and FHA domains 1 provided by HGNC**Primary source** HGNC:24684**See related** Ensembl:ENSG00000164252 HPRD:07621; MIM:608464; Vega:OTTHUMG00000102132**Gene type** protein coding**RefSeq status** REVIEWED**Organism** [Homo sapiens](#)**Lineage** Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires;

Primates; Haplorrhini; Catarrhini; Hominidae; Homo

Also known as VG5Q; GPATC7; GPATCH7; HSU84971; HUS84971**Summary** This gene encodes an angiogenic factor with G patch and FHA domains. It is associated with a susceptibility to schizophrenia. It is located on chromosomes 3, 4, 10 and 17.

Genome annotation information

<http://asia.ensembl.org/>

Genomic context

**Location:** 5q13.3**Sequence:** Chromosome: 5; NC_000005.9 (76326210..76361059)[Pangenomics](#), [MapViewer](#)

[76145826]

Chromosome 5 - NC_000005.9

[76444176]



Gene

Gene

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Gene ID: 55109, updated on 10-Jul-2012

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Primates; Haplorrhini; Catarrhini; Hominoidea; Homo

Also known as VG5Q; GPATC7; GPATCH7; HSU84971; NLIS84971**Summary** This gene encodes an angiogenic factor that

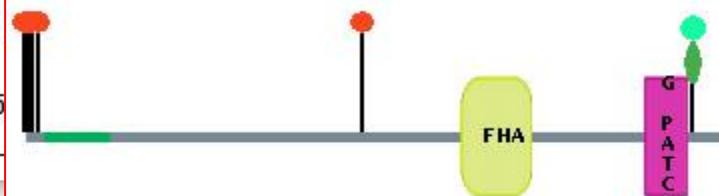
associated with a susceptibility to Klippel-Tr

chromosomes 3, 4, 10 and 16 [provided by R

**Domains,
Motifs,
Interaction,
Expression**<http://www.hprd.org/>**Genomic context****Location:** 5q13.3**Sequence:** Chromosome: 5; NC_000005.9 (76326210..76361059)

[76145826]

Chromosome 5



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Gene

Gene

GenBank >> Gene

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Primates; Haplorrhini; Catarrhini; Hominidae; Homo

Also known as [VCF0](#); [CRATC7](#); [CRATCH7](#); [HSU194971](#); [HUS94971](#)**Summary****Vertebrate Genome
Annotation (VEGA)
database**<http://vega.sanger.ac.uk/>endothelial cells. Mutations in this gene are
abundant in the brain and heart. Several missense mutations in this gene are found on**Genomic context****Location:** 5q13.3**Sequence:** Chromosome: 5; NC_000005.9 (76326210..76361059)See AGGF1 in [Epigenomics](#), [MapViewer](#)

Chromosome 5 - NC_000005.9

[76145826]

[76444176]



Conserved Domains

dbVar

EST

Full text in PMC

Genome

GEO Profiles

HomoloGene

Map Viewer

Nucleotide

OMIM

Probe

Protein

PubChem Compound

PubChem Substance

PubMed

PubMed (GeneRIF)

PubMed (OMIM)

RefSeq Proteins

RefSeq RNAs

RefSeqGene

SNP

SNP: GeneView

SNP: Genotype

SNP: VarView

Taxonomy

UniGene

UniSTS

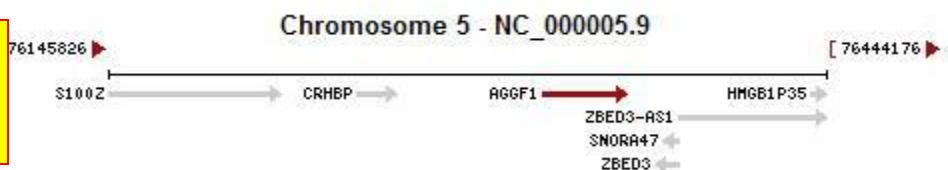
Genomic context

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See AGGF1 in [Epigenomics](#), [MapViewer](#)

该基因所在的
染色体位置



Genomic regions, transcripts, and products

Genomic Sequence

NC_000005 chromosome 5 reference GRCh37.p5 Primary Assembly

Go to reference sequence details

Go to nucleotide [Graphics](#) [FASTA](#) [GenBank](#)



Genes

NM_018046.4 → AGGF1 → NP_060516.2

NP_115743.1

Genes - tRNA

SNP

Clinical Channel

1

Cited Variants

1

1

1

Association Results



Conserved Domains

dbVar

EST

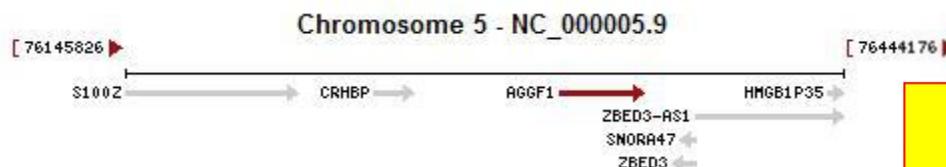
Full text in PMC

Genome

GEO Profiles

See AGGF1 in [Epigenomics](#), [MapViewer](#)

该基因在Epigenomics
和MapViewer中的情况



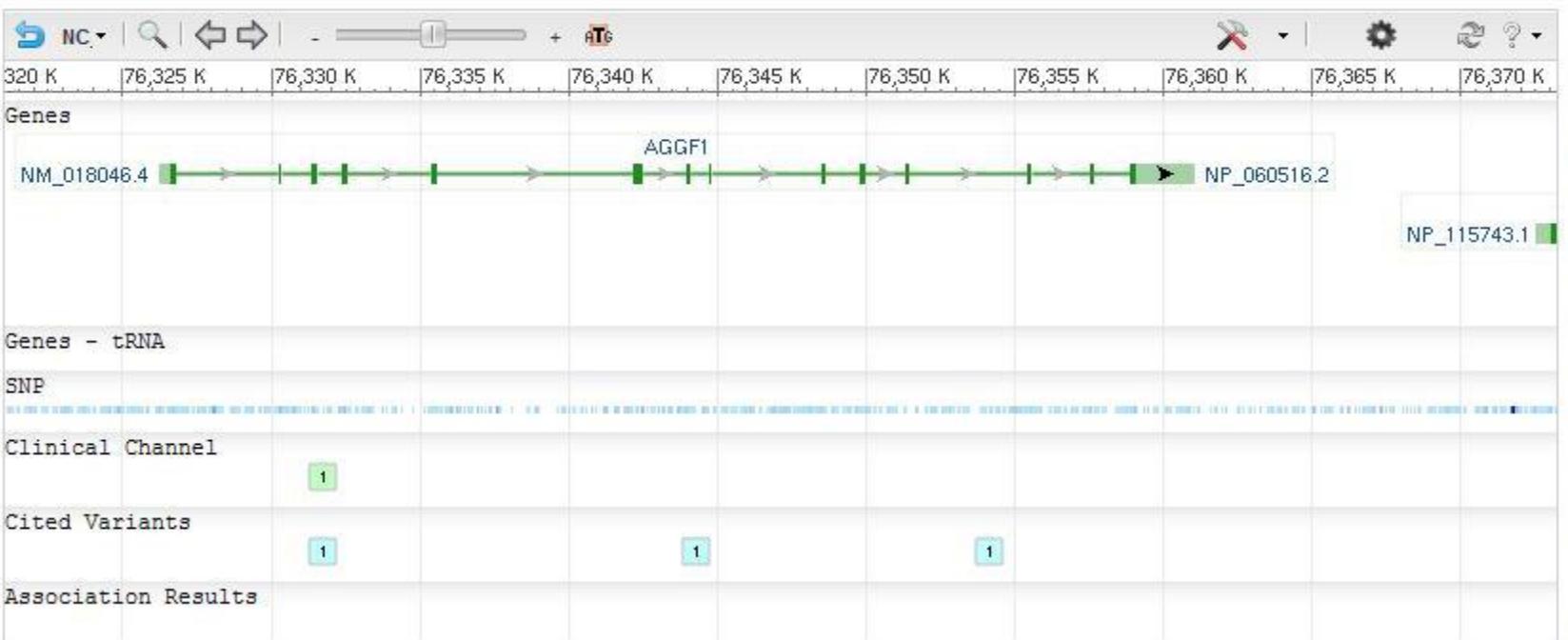
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OMIM

Probe

Protein

PubChem Compound

PubChem Substance

PubMed

PubMed (GeneRIF)

PubMed (OMIM)

RefSeq Proteins

RefSeq RNAs

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Taxonomy

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Genomic context



Location: 5q13.3

See AGGF1 in [Epigenomics](#), [MapViewer](#)

Sequence: Chromosome 5; NC_000005.9 (76326210..76361059)



Genomic regions, transcripts, and products



Genomic Sequence

NC_000005

Primary Assembly

Go to reference sequence details

Go to nucleotide

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[GenBank](#)



Conserved Domains

dbVar

EST

Full text in PMC

Genome

GEO Profiles

See AGGF1 in [Epigenomics](#), [MapViewer](#)

该基因显示模式
图示、FASTA格式序列、
Genbank格式注释信息



Genomic regions, transcripts, and products

Genomic Sequence

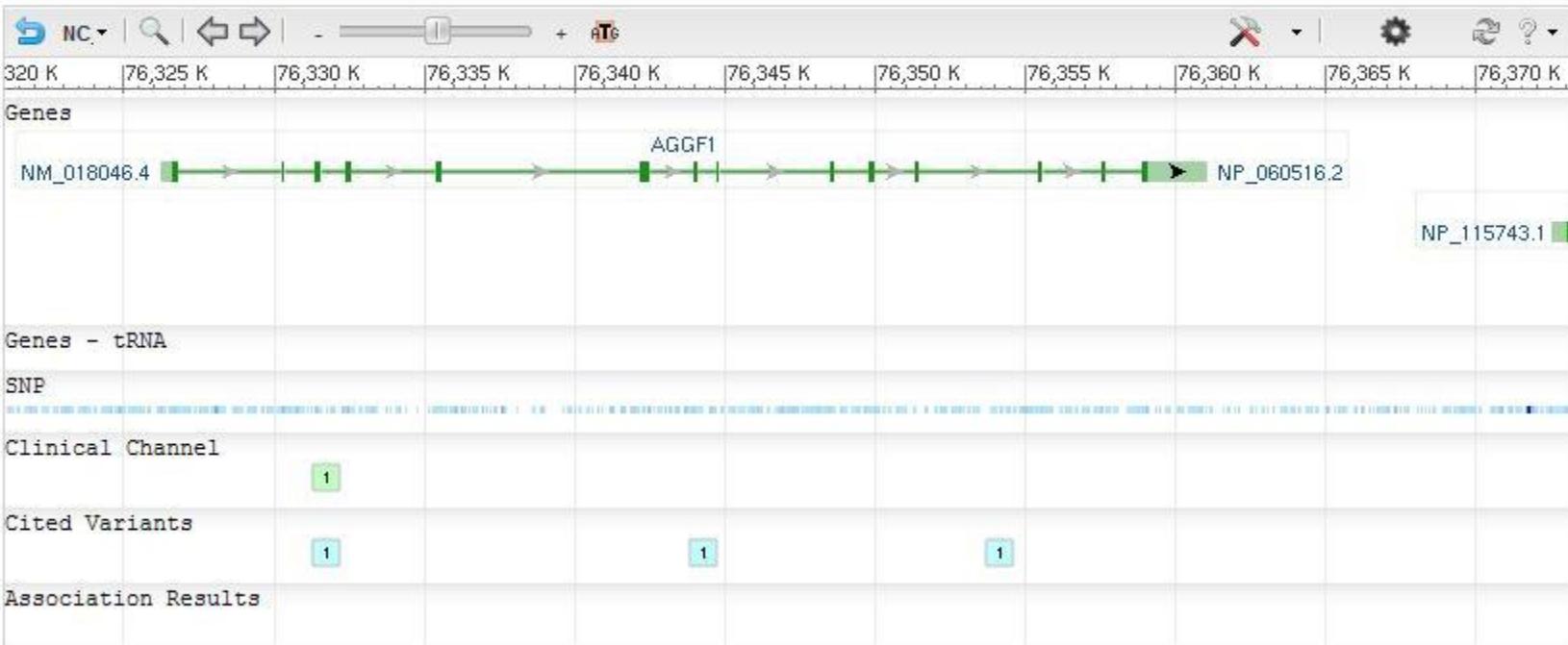
NC_000005 chromosome 5 reference GRCh37.p5 Primary Assembly

Go to reference sequence details

Go to nucleotide

Graphics FASTA GenBank

- Probe
- Protein
- PubChem Compound
- PubChem Substance
- PubMed
- PubMed (GeneRIF)
- PubMed (OMIM)
- RefSeq Proteins
- RefSeq RNAs
- RefSeqGene
- SNP
- SNP: GeneView
- SNP: Genotype
- SNP: VarView
- Taxonomy
- UniGene
- UniSTS



Conserved Domains

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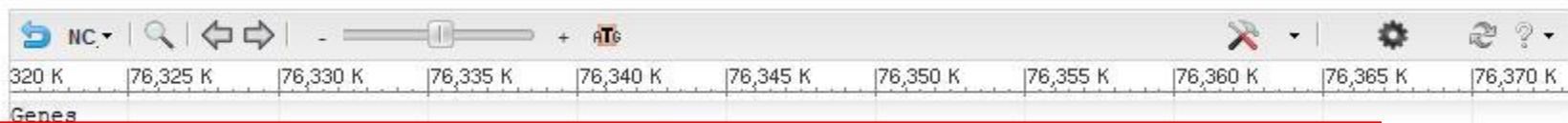
Genomic regions, transcripts, and products

Genomic Sequence

NC_000005 chromosome 5 reference GRCh37.p5 Primary Assembly

[Go to reference sequence details](#)

[Go to nucleotide](#) [Graphics](#) [FASTA](#) [GenBank](#)



该基因编码的RNA和蛋白的结构模式图

高一点绿色矩形框或竖线为外显子；
其中淡绿色为非编码区，深绿色为浅绿色；
水平细线为内含子；
箭头为编码方向；
注意负链问题



AGGF1

AceView

Ensembl

Evidence Viewer

HGNC

HPRD

HuGE Navigator

KEGG

MGC

ModelMaker

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5. [Identification of association of common AGGF1 variants with susceptibility for Klippel-Trenaunay syndrome using the structure association program](#). Hu Y, et al. *Ann Hum Genet*, 2008 Sep. PMID 18564129.

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6. [results define VG5Q as an angiogenic factor, establish VG5Q as a susceptibility gene for Klippel-Trenaunay syndrome, and show that increased angiogenesis is a molecular pathogenic mechanism of KTS](#)
7. [This review describes the somatic mutation for angiogenic factor VG5Q, which may be the cause of the multisystem disorder Klippel-Trenaunay syndrome.](#)



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2. [Systematic analysis of human protein complexes identifies chromosome segregation proteins](#). Hutchins JR, et al. *Science*, 2010 Apr 30. PMID 20360068.
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Phenotypes

该基因表型相关信息

Review eQTL and phenotype association data in this region using PheGenI

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Interactions



| Products | Interactant | Other Gene | Complex | Source | Pubs | Description |
|----------------|--------------------------------|-------------------------|---------|-------------------------|------------------------|---------------------------|
| NP_060516.2 | NP_003800.1 | TNFSF12 | | BIND | PubMed | VG5Q interacts with TWEAK |
| Q8N302 | Q15834 | CCDC85B | | HPRD | PubMed | |
| Q8N302 | Q9UL45 | PLDN | | HPRD | PubMed | |
| Q8N302 | O43508 | TNFSF12 | | HPRD | PubMed | |
| BioGRID:120419 | BioGRID:116198 | CCDC85B | | BioGRID | PubMed | Two-hybrid |
| BioGRID:120419 | BioGRID:207994 | Dynll1 | | BioGRID | PubMed | Affinity Capture-MS |
| BioGRID:120419 | BioGRID:117644 | PLDN | | BioGRID | PubMed | Two-hybrid |
| BioGRID:120419 | BioGRID:114054 | RAE1 | | BioGRID | PubMed | Affinity Capture-MS |

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AGGF1 angiogenesis and FHA domain

vasculogen* (370)

vasculogen*[ti] (

vasculogenesis[ti] (15232)

vasculogenesis[ti]

General gene information



Markers

Genotypes

[See AGGF1 SNP Geneview Report](#)[See AGGF1 SNP Genotype Report](#)[See AGGF1 SNP Variation Viewer Report](#)

Related pseudogene(s)

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Homology



Phenotypes

Probe
RefSeq
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Review eQTL and phenotype association data in this region using PheGenI

Interactions

与该基因/蛋白相互作用的其他基因/蛋白

| Products | Interactant | Other Gene | Complex | Source | Pubs | Description |
|----------------|----------------|------------|---------|---------|--------|---------------------------|
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| BioGRID:120419 | BioGRID:207994 | Dynll1 | | BioGRID | PubMed | Affinity Capture-MS |
| BioGRID:120419 | BioGRID:117644 | PLDN | | BioGRID | PubMed | Two-hybrid |
| BioGRID:120419 | BioGRID:114054 | RAE1 | | BioGRID | PubMed | Affinity Capture-MS |

General gene information

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Markers

AGGF1 angioge and FHA domain

Genotypes

vasculogen* (370)

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vasculogen*[ti] (

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vasculogen*[ti] (

[See AGGF1 SNP Variation Viewer Report](#) 

vasculogenesis[ti] (15232)

Related pseudogene(s)

vasculogenesis[ti]

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Homology

vasculogenesis[ti]



Phenotypes

Probe
RefSeq
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Review eQTL and phenotype association data in this region using PheGenI

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- AGGF1 angiogenesis and FHA domain
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- vasculogen*[ti] (
- vasculogenesis[ti] (15232)
- vasculogenesis[ti]

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General gene information

Markers

Genotypes

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Related pseudogene(s)

8 found [Review record\(s\) in Gene](#)

Homology

与该基因相关的其他信息
如标记物、基因型、假基因、
同源基因等



基因功能注释信息

| Function | | Evidence Code | Pubs |
|---|------|---------------------|------------------------|
| eukaryotic cell surface binding | 分子功能 | IDA | PubMed |
| nucleic acid binding | | IEA | |
| protein binding | | IPI | PubMed |

| Process | | Evidence Code | Pubs |
|---|-------|---------------------|------------------------|
| RNA processing | 生物学过程 | TAS | PubMed |
| angiogenesis | | IEA | |
| cell adhesion | | IDA | PubMed |
| positive regulation of angiogenesis | | IDA | PubMed |
| positive regulation of endothelial cell proliferation | | IDA | PubMed |
| vasculogenesis | | TAS | PubMed |

| Component | | Evidence Code | Pubs |
|---|----------|---------------------|------------------------|
| cytoplasm | 细胞组分(定位) | IDA | PubMed |
| extracellular region | | IDA | PubMed |
| perinuclear region of cytoplasm | | IDA | PubMed |

General protein information

该基因编码蛋白相关信息

Preferred Names

angiogenic factor with G patch and FHA domains 1

Names

angiogenic factor with G patch and FHA domains 1



RefSeqs maintained independently of Annotated Genomes

These reference sequences exist independently of genome builds. [Explain](#)

Genomic

该基因相关序列信息
基因组序列
RNA序列
蛋白质序列

1. NG_027822.1 RefSeqGene

Range 5001..39850

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mRNA and Protein(s)

1. NM_018046.4 → NP_060516.2 angiogenic factor with G patch and FHA domains 1

Status: REVIEWED

Source sequence(s) AC008581, AI453097, AY500994, BI561566, BX648120, DR157679

Consensus CDS CCDS4035.1

UniProtKB/Swiss-Prot Q8N302

Related ENSP00000316109, OTTHUMP00000128327, ENST00000312916, OTTHUMT00000219971

Conserved Domains (1) [summary](#)

| | | |
|--|---|---|
| | cd00060 Location:410 – 516 Blast Score: 171 | FHA; Forkhead associated domain (FHA); found in eukaryotic and prokaryotic proteins. Putative nuclear signalling domain. FHA domains may bind phosphothreonine, phosphoserine and sometimes phosphotyrosine. In eukaryotes, many FHA domain-containing proteins ... |
|--|---|---|

RefSeqs of Annotated Genomes: Build 37.3

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specific roles, they often work together in the cell as protein machines.

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Genomic

1. NG_027822.1 RefSeqGene

Range 5001..39850

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这里就是该基因相关的mRNA
和蛋白信息超链接

mRNA and Protein(s)

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cd00060

Location: 410 – 516

Blast Score: 171

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Conserved Domains
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OMIM
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Protein
PubChem Compound
PubChem Substance
PubMed
PubMed (GeneRIF)
PubMed (OMIM)
RefSeq Proteins
RefSeq RNAs
RefSeqGene
SNP
SNP: GeneView
SNP: Genotype
SNP: VarView
Taxonomy
UniGene
UniSTS

Genomic context

Location: 5q13.3

See AGGF1 in [Epigenomics](#), [MapViewer](#)

Sequence: Chromosome: 5; NC_000005.9 (76326210..76361059)



Genomic regions, transcripts, and products

Genomic Sequence

NC_000005 chromosome 5 reference GRCh37.p5 Primary Assembly

Go to reference sequence details

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GENOMES to LIFE

BIOLOGICAL SOLUTIONS FOR ENERGY CHALLENGES



如何找到一个基因突变与疾病关联的相关信息? 【Genbank的OMIM数据库】

Genes and other DNA sequences contain instructions on how and when to build proteins



Proteins perform many of life's most essential functions. To carry out their specific roles, they often work together in the cell as protein machines.

goal
IDENTIFY PROTEIN MACHINES

CAPABILITIES TO UNDERSTAND COMPLEX BIOLOGICAL SYSTEMS

WORKING CELL

Many protein machines interact through complex interconnected pathways. Analyzing these dynamic processes will lead to models of life processes.

goal
CHARACTERIZE GENE REGULATORY NETWORKS

URL: DOEGenomesToLife.org

10/02

Apply knowledge of microbial functional capabilities

Protect workers and the public

Clean up the environment

Sequester excess carbon

Produce and use energy



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Genotypes and Phenotypes

Data from Genome Wide Association studies that link genes and diseases. See study variables, protocols, and analysis.

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NCBI Announcements

New NCBI Insights blog post: Designing exon-specific primers for the human genome Dec 2, 2014

The latest blog post on NCBI Insights

NCBI to hold two-day genomics hackathon in January Nov 26, 2014

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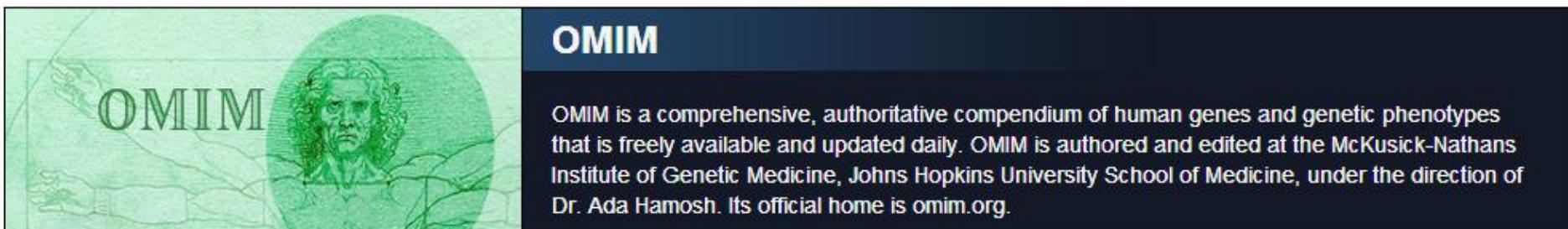
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OMIM

OMIM is a comprehensive, authoritative compendium of human genes and genetic phenotypes that is freely available and updated daily. OMIM is authored and edited at the McKusick-Nathans Institute of Genetic Medicine, Johns Hopkins University School of Medicine, under the direction of Dr. Ada Hamosh. Its official home is omim.org.

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PROTEINS
Proteins perform many of life's most essential functions. To carry out their specific roles, they often work together in the cell as protein machines.



will lead to models of life processes.

URL: DOEGenomesToLife.org

10/02



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OMIM: Online Mendelian Inheritance in Man

Mutations in genes



Abnormal function



Tumorigenesis or other diseases

Genes and other DNA sequences contain instructions on how cells can build proteins.

PROTEINS

Proteins perform many of life's most essential functions. To carry out their specific roles, they often work together in the cell as protein machines.

Apply knowledge of microbial functional capabilities

URL: DOEGenomesToLife.org

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OMIM: Online Mendelian Inheritance in Man

Mutations in genes



Abnormal function



Tumorigenesis or other diseases

- (1) Cancer: lung cancer, gastric cancer, liver cancer, etc.**
- (2) Gene: TP53, ERBB2, EGFR, etc.**
- (3) Special topic: fusion genes and cancers**



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苏州大学 医学部 基础医学与生物科学学院 生物信息教研室 张高川（未经同意不得私自转载和发布）

1. %612593 - LUNG CANCER SUSCEPTIBILITY 4; LNCR4
Cytogenetic locations: 6p21.33
OMIM: 612593
Gene summaries Genetic tests Medical literature

2. *612385 - MEDIATOR COMPLEX SUBUNIT 19; MED19
Cytogenetic locations: 11q12.1
OMIM: 612385
Gene summaries Genetic tests Medical literature

3. %614210 - LUNG CANCER SUSCEPTIBILITY 5; LNCR5
Cytogenetic locations: 3q28
OMIM: 614210
Gene summaries Genetic tests Medical literature

4. *300625 - KITA-KYUSHU LUNG CANCER ANTIGEN 1
Cytogenetic locations: Xq23
OMIM: 300625
Gene summaries Genetic tests Medical literature

5. *604050 - DELETED IN LUNG AND ESOPHAGEAL CANCER 1; DLEC1
Cytogenetic locations: 3p22.2
OMIM: 604050

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[%612571 - LUNG CANCER SUSCEPTIBILITY 3; LNCR3](#)

9. Cytogenetic locations: 5p15.33

OMIM: 612571

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[%182280 - SMALL CELL CANCER OF THE LUNG](#)

10. Cytogenetic locations: 1pter-p36.13, 3p23-p21

OMIM: 182280

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[*603963 - INTEGRIN, ALPHA-9; ITGA9](#)

11. Cytogenetic locations: 3p22.2

OMIM: 603963

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[#211980 - LUNG CANCER](#)

12. ALVEOLAR CELL CARCINOMA, INCLUDED

Cytogenetic locations: 1pter-p36.13, 5q31.1, 1pter-p36.13, 3q26.32, 1pter-p36.13, 3p21.31, 1pter-p36.13, 3p22.2, 1pter-p36.13, 2q33.1, 1pter-p36.13, 19q13.2, 1pter-p36.13, 17q12, 1pter-p36.13, 1q24.3

OMIM: 211980

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[*610958 - 1-@ACYLGLYCEROL-3-PHOSPHATE O-ACYLTRANSFERASE 9; AGPAT9](#)

13. Cytogenetic locations: 4q21.23

OMIM: 610958

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[*605686 - IMMUNOGLOBULIN SUPERFAMILY, MEMBER 4; IGSF4](#)

14. Cytogenetic locations: 11q23.3

OMIM: 605686

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Apply knowledge of
functional
abilities



Many protein
machines interact
through complex
interconnected
pathways. Analyzing
dynamic processes
lead to models of life
processes.

DEGenomesToLife.org

10/02

Gen
DNA
cont
on h
to b



Proteins perform
specific roles, i



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LUNG CANCER

Other entities represented in this entry:

ALVEOLAR CELL CARCINOMA, INCLUDED

ADENOCARCINOMA OF LUNG, INCLUDED

NONSMALL CELL LUNG CANCER, INCLUDED

LUNG CANCER, PROTECTION AGAINST, INCLUDED

Table of Contents for #211980

- Title
- Phenotype–Gene Relationships
- Text
- Description
- Clinical Features
- Inheritance
- Population Genetics
- Pathogenesis
- Clinical Management
- Mapping
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Phenotype–Gene Relationships

| Location | Phenotype | Phenotype MIM number | Phenotype mapping key | Gene/Locus | Gene/Locus MIM number |
|----------|--|-------------------------|--------------------------|------------|--------------------------|
| 1q24.3 | {Lung cancer, susceptibility to} | 211980 | 3 | FASLG | 134638 |
| 2q33.1 | {Lung cancer, protection against} | 211980 | 3 | CASP8 | 601763 |
| 3p22.2 | Lung cancer | 211980 | 1 | DLEC1 | 604050 |
| 3p21.31 | Lung cancer | 211980 | 2 | RASSF1 | 605082 |
| 3q26.32 | Nonsmall cell lung cancer, somatic | 211980 | 3 | PIK3CA | 171834 |
| 5q31.1 | Nonsmall cell lung cancer, somatic | 211980 | 3 | IRF1 | 147575 |
| 6q26 | Adenocarcinoma of lung, somatic | 211980 | 3 | PRKN | 602544 |
| 7p11.2 | {Nonsmall cell lung cancer, susceptibility to} | 211980 | 3 | EGFR | 131550 |



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| 6q26 | Adenocarcinoma of lung, somatic | 211980 | 3 | PRKN | 602544 |
| 7p11.2 | {Nonsmall cell lung cancer, susceptibility to} | 211980 | 3 | EGFR | 131550 |
| 7p11.2 | Nonsmall cell lung cancer, response to tyrosine kinase inhibitor in | 211980 | 3 | EGFR | 131550 |
| 7p11.2 | Adenocarcinoma of lung, response to tyrosine kinase inhibitor in | 211980 | 3 | EGFR | 131550 |
| 7q34 | Adenocarcinoma of lung, somatic | 211980 | 3 | BRAF | 164757 |
| 10p11.23 | Lung cancer, somatic | 211980 | 3 | MAP3K8 | 191195 |
| 10q11.23 | {Lung cancer, susceptibility to} | 211980 | 3 | ERCC6 | 609413 |
| 11p15.4 | Lung cancer, somatic | 211980 | 3 | SLC22A1L | 602631 |
| 11q23.1 | Lung cancer | 211980 | 3 | PPP2R1B | 603113 |
| 12p12.1 | Lung cancer, somatic | 211980 | 3 | KRAS | 190070 |
| 17q12 | Adenocarcinoma of lung, somatic | 211980 | 3 | ERBB2 | 164870 |
| 19q13.2 | {Lung cancer, resistance to} | 211980 | 3 | CYP2A6 | 122720 |

Clinical Synopsis

specific roles, they often work together in the cell as protein machines.

REGULATORY NETWORKS

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Apply knowledge of

Cytogenetics

ALK/EML4 Fusion Gene

Soda et al. (2007) identified a fusion gene, ALK/EML4 (see 105590), that was present in 5 of 75 Japanese nonsmall cell lung cancer patients examined. None of these patients had mutations in EGFR. 

Copy Number Variation at the MAPKAPK2 Locus

Liu et al. (2012) investigated the role in lung cancer of a copy number variant (CNV), g.CNV-30450, which spans the MAPKAPK2 (602006) promotor region and has 1.7-kb sequences from -1098 to approximately +664 nucleotides to the initiation transcription codon. This variant was found to have an allele frequency of 6/30 (0.20) in the Database of Genetic Variants. The authors detected 2, 3, or 4 copies of g.CNV-30450 among 4,789 Chinese individuals. Liu et al. (2012) investigated the association between cancer risk and g.CNV-30450 in 3 independent case-control studies of 2,332 individuals with lung cancer and 2,457 controls, and also studied the effects of this CNV on cancer prognosis in 1,137 individuals with lung cancer with survival data in Southern and Eastern Chinese populations. Liu et al. (2012) found that those subjects who had 4 copies of g.CNV-30450 had an increased cancer risk (OR = 1.94, 95% CI = 1.61-2.35) and, in individuals with lung cancer, a worse prognosis (with a median survival time of only 9 months) (hazard ratio = 1.47, 95% CI = 1.22-1.78) compared with those with 2 or 3 copies (with a median survival time of 14 months). Liu et al. (2012) also showed that 4 copies of g.CNV-30450 significantly increased MAPKAPK2 expression, both in vitro and in vivo, compared with 2 or 3 copies. 

See Also:

Brisman et al. (1967); Goffman et al. (1982)

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Display Titles Show 20 Send to

All: 150 OMIM UniSTS: 18 OMIM dbSNP: 43

Items 1 - 20 of 150 Page 1 of 8 Next

1: *131550. EPIDERMAL GROWTH FACTOR RECEPTOR; EGFR
Gene map locus 7p12.3-p12.1

2: #211980. LUNG CANCER
ALVEOLAR CELL CARCINOMA, INCLUDED
Gene map locus 17q21.1, 12p12.1, 11q22-q24, 11p15.5, 10q11, 10p11.2, 7q34, 7p12.3-p12.1, 6q25.2-q27, 5q31.1, 3q26.3, 3p21.3, 3p22-p21.3, 2q33, 19q13.2

3: *614503. KELCH DOMAIN-CONTAINING PROTEIN 8A; KLHDC8A

4: *611915. EGFR-COAMPLIFIED AND OVEREXPRESSED PROTEIN
Gene map locus 7p11.2

5: #137800. GLIOMA SUSCEPTIBILITY 1; GLM1
GLIOMA OF BRAIN, FAMILIAL, INCLUDED
Gene map locus 17q21.1, 3p25

6: *164870. V-ERB-B2 AVIAN ERYTHROBLASTIC LEUKEMIA VIRAL ONCOGENE HOMOLOG 2; ERBB2
HERSTATIN, INCLUDED
Gene map locus 17q21.1

7: *164011. NUCLEAR FACTOR KAPPA-B, SUBUNIT 1; NFKB1
NFKB1, 105, INCLUDED

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EGFR (150) OMIM See more...

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*131550

EPIDERMAL GROWTH FACTOR RECEPTOR; EGFR

Allelic Variants (Selected Examples):

| Number | Phenotype | Mutation | dbSNP |
|--------|--|---------------------------------|---------------|
| .0001 | NONSMALL CELL LUNG CANCER, RESPONSE TO TYROSINE KINASE INHIBITOR IN, SOMATIC | EGFR, 18-BP DEL, NT2240 | - |
| .0002 | NONSMALL CELL LUNG CANCER, RESPONSE TO TYROSINE KINASE INHIBITOR IN, SOMATIC ADENOCARCINOMA OF LUNG, RESPONSE TO TYROSINE KINASE INHIBITOR IN, SOMATIC, INCLUDED | EGFR, LEU858ARG | [rs121434568] |
| .0003 | NONSMALL CELL LUNG CANCER, RESPONSE TO TYROSINE KINASE INHIBITOR IN, SOMATIC | EGFR, 12-BP DEL, NT2240 | - |
| .0004 | NONSMALL CELL LUNG CANCER, RESPONSE TO TYROSINE KINASE INHIBITOR IN, SOMATIC | EGFR, GLY719CYS (rs28929495) | - |
| .0005 | NONSMALL CELL LUNG CANCER, RESPONSE TO TYROSINE KINASE INHIBITOR IN, SOMATIC | EGFR, GLY719SER | [rs28929495] |
| .0006 | NONSMALL CELL LUNG CANCER, RESISTANCE TO TYROSINE KINASE INHIBITOR IN | EGFR, THR790MET | [rs121434569] |

on how and when
to build proteins

PROTEIN
MACHINES

BIOLOGICAL
SYSTEMS

Many protein
machines interact
through complex
interconnected
pathways. Analyzing
these complex processes
can lead to models of life
processes.

<http://www.myriadresourceguide.com/process/mutation.htm>

Proteins perform many of life's most essential functions. To understand their specific roles, they often work together in the cell as protein machines.

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(fusion gene) (cancer or tumor or tumour or carcino* or *blastoma*)

Advanced Search ▾ | Search History | Display Options ▾ | Retrieve corresponding:

Would you also like: carcinoma neoplasia Add All

Search: '(fusion gene) (cancer or tumor or tu
Results: 1 – 10 of 20,408 | Show 100 |

1 : * 191170. TUMOR PROTEIN p53
Cytogenetic location: 17p13.1, Genomic coordinates (GRCh37): 17:118,307,204-118,397,538
Matching terms: fusion, leukemia, gene Gene Tests, Links

2 : + 159555. LYSINE-SPECIFIC METHYLTRANSFERASE 2A; KMT2A
MIXED LINEAGE LEUKEMIA, INCLUDED
Cytogenetic location: 11q23.3, Genomic coordinates (GRCh37): 11:118,307,204-118,397,538
Matching terms: fusion, leukemia, gene, tumor, lymphoma, leukaemia, cancer Gene Tests, Links

3 : + 601728. PHOSPHATASE AND TENSIN HOMOLOG; PTEN
PTEN HAMARTOMA TUMOR SYNDROME, INCLUDED
Cytogenetic location: 10q23.31, Genomic coordinates (GRCh37): 10:89,623,194-89,728,531
Matching terms: fusion, leukemia, gene, tumor, tumour, lymphoma, leukaemia, cancer Gene Tests, Links

4 : * 168461. CYCLIN D1; CCND1
CCND1/IGHG1 FUSION GENE, INCLUDED
Cytogenetic location: 11q13.3, Genomic coordinates (GRCh37): 11:69,455,872-69,469,241
Matching terms: fusion, leukemia, gene, tumor, lymphoma, cancer Links

5 : * 164757. V-RAF MURINE SARCOMA VIRAL ONCOGENE HOMOLOG B1; BRAF
BRAF/AKAP2 FUSION GENE, INCLUDED Gene Tests, Links

   苏州大学 医学部 基础医学与生物科学学院 生物信息教研室 张高川 (未经同意不得私自转载和发布) 

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Search

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Would you also like: carcinoma neoplasia Add All

Search: '(fusion gene) (cancer or tumor or tumour or carcino* or *blastoma* or leukemia or lymphoma)'

Results: 1 – 10 of 20,408 | Show 100 | Download As ▾ | 1 2 3 4 5 6 7 8 9 10 Next Last

1 : * 191170. TUMOR PROTEIN p53; TP53

Gene Tests, Links

Cytogenetic location: 17p13.1, Genomic coordinates (GRCh37): 17:7,571,719-7,590,867

Matching terms: fusion, leukemia, gene, tumor, tumour, cancerous, lymphoma, leukaemia, cancer

2 : + 159555. LYSINE-SPECIFIC METHYLTRANSFERASE 2A; KMT2A

Gene Tests, Links

MIXED LINEAGE LEUKEMIA, INCLUDED

Cytogenetic location: 11q23.3, Genomic coordinates (GRCh37): 11:118,307,204-118,397,538

Matching terms: fusion, leukemia, gene, tumor, lymphoma, leukaemia, cancer

3 : + 601728. PHOSPHATASE AND TENSIN HOMOLOG; PTEN

Gene Tests, Links

PTEN HAMARTOMA TUMOR SYNDROME, INCLUDED

Cytogenetic location: 10q23.31, Genomic coordinates (GRCh37): 10:89,623,194-89,728,531

Matching terms: fusion, leukemia, gene, tumor, tumour, lymphoma, leukaemia, cancer

4 : * 168461. CYCLIN D1; CCND1

Links

CCND1/IGHG1 FUSION GENE, INCLUDED

Cytogenetic location: 11q13.3, Genomic coordinates (GRCh37): 11:69,455,872-69,469,241

Matching terms: fusion, leukemia, gene, tumor, lymphoma, cancer

5 : * 164757. V-RAF MURINE SARCOMA VIRAL ONCOGENE HOMOLOG B1; BRAF

Gene Tests, Links

BRAF/AKAP2 FUSION GENE, INCLUDED



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(fusion gene) (cancer or tumor or tumour or carcino* or *blastoma*)

Search

Advanced Search ▾ | Search History | Display Options ▾ | Retrieve corresponding: Gene Map Clinical Synopsis

Would you also like: carcinoma neoplasia Add All

Search: '(fusion gene) (cancer or tumor or tumour or carcino* or *blastoma* or leukemia or lymphoma)'

Results: 1 – 10 of 20,408 | Show 100 | Download As ▾ | 1 2 3 4 5 6 7 8 9 10 Next Last

1 : * 191170. TUMOR PROTEIN p53; TP53

Gene Tests, Links

Cytogenetic location: 17p13.1, Genomic coordinates (GRCh37): 17:7,571,719-7,590,867

Matching terms: fusion, leukemia, gene, tumor, tumour, cancerous, lymphoma, leukaemia, cancer

2 : + 159555. LYSINE-SPECIFIC METHYLTRANSFERASE 2A; KMT2A

Gene Tests, Links

MIXED LINEAGE LEUKEMIA, INCLUDED

Cytogenetic location: 11q23.3, Genomic coordinates (GRCh37): 11:118,307,204-118,397,538

Matching terms: fusion, leukemia, gene, tumor, lymphoma, leukaemia, cancer

3 : + 601728. PHOSPHATASE AND TENSIN HOMOLOG; PTEN

Gene Tests, Links

PTEN HAMARTOMA TUMOR SYNDROME, INCLUDED

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Matching terms: fusion, leukemia, gene, tumor, tumour, lymphoma, leukaemia, cancer

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Links

CCND1/IGHG1 FUSION GENE, INCLUDED

Cytogenetic location: 11q13.3, Genomic coordinates (GRCh37): 11:69,455,872-69,469,241

Matching terms: fusion, leukemia, gene, tumor, lymphoma, cancer

5 : * 164757. V-RAF MURINE SARCOMA VIRAL ONCOGENE HOMOLOG B1; BRAF

Gene Tests, Links

BRAF/AKAP2 FUSION GENE, INCLUDED



GenBank >> OMIM >> Search for “fusion gene”

| | A | B | C |
|----|--|---|------------------------|
| 1 | +159555 MYELOID/LYMPHOID OR MIXED LINEAGE LEUKEMIA GENE; MLL MIXED LINEAGE LEUKEMIA, INCLUDED Gene map locus 11q23 | MIXED LINEAGE LEUKEMIA, INCLUDED | Gene map locus 11q23 |
| 2 | | | |
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| 5 | *600618 ETS VARIANT GENE 6; ETV6 ETV6/PDGFRB FUSION GENE, INCLUDED Gene map locus 12p13 | ETV6/PDGFRB FUSION GENE, INCLUDED | Gene map locus 12p13 |
| 6 | | | |
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| 9 | *133450 EWING SARCOMA BREAKPOINT REGION 1; EWSR1 EWS/FLI1 FUSION GENE, INCLUDED Gene map locus 22q12 | EWS/FLI1 FUSION GENE, INCLUDED | Gene map locus 22q12 |
| 10 | | | |
| 11 | | | |
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| 13 | *601021 NUCLEOPORIN, 98-KD; NUP98 NUP98-NUP96 PRECURSOR PROTEIN, INCLUDED Gene map locus 11p15 | NUP98-NUP96 PRECURSOR PROTEIN, INCLUDED | Gene map locus 11p15 |
| 14 | | | |
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| 17 | *151385 RUNT-RELATED TRANSCRIPTION FACTOR 1; RUNX1 AML1/TEL FUSION GENE, INCLUDED Gene map locus 21q22.3 | AML1/TEL FUSION GENE, INCLUDED | Gene map locus 21q22.3 |
| 18 | | | |
| 19 | | | |
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| 21 | *600698 HIGH MOBILITY GROUP AT-HOOK 2; HMGA2 HMGIC/LPP FUSION GENE, INCLUDED Gene map locus 12q14.3 | HMGIC/LPP FUSION GENE, INCLUDED | Gene map locus 12q14.3 |
| 22 | | | |
| 23 | | | |
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| 25 | *109565 B-CELL LYMPHOMA 6; BCL6 BCL6/H4FM FUSION GENE, INCLUDED Gene map locus 3q27 | BCL6/H4FM FUSION GENE, INCLUDED | Gene map locus 3q27 |
| 26 | | | |
| 27 | | | |
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| 29 | *105590 ANAPLASTIC LYMPHOMA KINASE; ALK ALK/EML4 FUSION GENE, INCLUDED | ALK/EML4 FUSION GENE, INCLUDED | Gene map locus 2p23 |
| 30 | | | |

Proteins perform many of life's most essential functions. To carry out their specific roles, they often work together in the cell as protein machines.

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| | A | B | C |
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| 1 | +159555 MYELOID/LYMPHOID OR MIXED LINEAGE LEUKEMIA GENE; MLL MIXED LINEAGE LEUKEMIA, INCLUDED Gene map locus 11q23 | MIXED LINEAGE LEUKEMIA, INCLUDED | Gene map locus 11q23 |
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| 13 | *601021 NUCLEOPORIN, 98-KD; NUP98 NUP98-NUP96 PRECURSOR PROTEIN, INCLUDED Gene map locus 11p15 | NUP98-NUP96 PRECURSOR PROTEIN, INCLUDED | Gene map locus 11p15 |
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| 21 | *600698 HIGH MOBILITY GROUP AT-HOOK 2; HMGA2 HMGCIC/LPP FUSION GENE, INCLUDED Gene map locus 12q14.3 | HMGCIC/LPP FUSION GENE, INCLUDED | Gene map locus 12q14.3 |
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| 25 | *109565 B-CELL LYMPHOMA 6; BCL6 BCL6/H4FM FUSION GENE, INCLUDED Gene map locus 3q27 | BCL6/H4FM FUSION GENE, INCLUDED | Gene map locus 3q27 |
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| 29 | *105590 ANAPLASTIC LYMPHOMA KINASE; ALK ALK/EML4 FUSION GENE, INCLUDED | ALK/EML4 FUSION GENE, INCLUDED | Gene map locus 2p23 |
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Proteins perform many of life's most essential functions. To carry out their specific roles, they often

= IF(RIGHT(A2,8) =
"INCLUDED", A2, "")

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| | A | B | C |
|----|--|---|------------------------|
| 1 | +159555 MYELOID/LYMPHOID OR MIXED LINEAGE LEUKEMIA GENE; MLL MIXED LINEAGE LEUKEMIA, INCLUDED Gene map locus 11q23 | MIXED LINEAGE LEUKEMIA, INCLUDED | Gene map locus 11q23 |
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| 5 | *600618 ETS VARIANT GENE 6; ETV6 ETV6/PDGFRB FUSION GENE, INCLUDED Gene map locus 12p13 | ETV6/PDGFRB FUSION GENE, INCLUDED | Gene map locus 12p13 |
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| 9 | *133450 EWING SARCOMA BREAKPOINT REGION 1; EWSR1 EWS/FLI1 FUSION GENE, INCLUDED Gene map locus 22q12 | EWS/FLI1 FUSION GENE, INCLUDED | Gene map locus 22q12 |
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| 13 | *601021 NUCLEOPORIN, 98-KD; NUP98 NUP98-NUP96 PRECURSOR PROTEIN, INCLUDED Gene map locus 11p15 | NUP98-NUP96 PRECURSOR PROTEIN, INCLUDED | Gene map locus 11p15 |
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| 17 | *151385 RUNT-RELATED TRANSCRIPTION FACTOR 1; RUNX1 AML1/TEL FUSION GENE, INCLUDED Gene map locus 21q22.3 | AML1/TEL FUSION GENE, INCLUDED | Gene map locus 21q22.3 |
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| 25 | *109565 B-CELL LYMPHOMA 6; BCL6 BCL6/H4FM FUSION GENE, INCLUDED Gene map locus 3q27 | BCL6/H4FM FUSION GENE, INCLUDED | Gene map locus 3q27 |
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| 27 | | | |
| 28 | | | |
| 29 | *105590 ANAPLASTIC LYMPHOMA KINASE; ALK ALK/EML4 FUSION GENE, INCLUDED | ALK/EML4 FUSION GENE, INCLUDED | Gene map locus 2p23 |
| 30 | | | |

Proteins perform many of life's most essential functions. To carry out their specific roles, they often work together in the cell as protein machines.

= IF(ISERROR (FIND ("Gene map locus", A3)), "", A3)



GenBank >> OMIM >> Search for “fusion gene”

| | A | B | C |
|----|--|---|------------------------|
| 1 | +159555 MYELOID/LYMPHOID OR MIXED LINEAGE LEUKEMIA GENE; MLL MIXED LINEAGE LEUKEMIA, INCLUDED Gene map locus 11q23 | MIXED LINEAGE LEUKEMIA, INCLUDED | Gene map locus 11q23 |
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| 5 | *600618 ETS VARIANT GENE 6; ETV6 ETV6/PDGFRB FUSION GENE, INCLUDED Gene map locus 12p13 | ETV6/PDGFRB FUSION GENE, INCLUDED | Gene map locus 12p13 |
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| 9 | *133450 EWING SARCOMA BREAKPOINT REGION 1; EWSR1 EWS/FLI1 FUSION GENE, INCLUDED Gene map locus 22q12 | EWS/FLI1 FUSION GENE, INCLUDED | Gene map locus 22q12 |
| 10 | | | |
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| 13 | *601021 NUCLEOPORIN, 98-KD; NUP98 NUP98-NUP96 PP2CUB DOMAIN PROTEIN, INCLUDED Gene map locus 11p15 | NUP98-NUP96 PP2CUB DOMAIN PROTEIN, INCLUDED | Gene map locus 11p15 |
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| 17 | *151385 RUNT-RELATED TRANSCRIPTION FACTOR 1 AML1/TEL FUSION GENE, INCLUDED Gene map locus 21q22.3 | AML1/TEL FUSION GENE, INCLUDED | Gene map locus 21q22.3 |
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| 21 | *600698 HIGH MOBILITY GROUP AT-HOOK 2; HMGIC HMGIC/LPP FUSION GENE, INCLUDED Gene map locus 12q14.3 | HMGIC/LPP FUSION GENE, INCLUDED | Gene map locus 12q14.3 |
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| 25 | *109565 B-CELL LYMPHOMA 6; BCL6 BCL6/H4FM FUSION GENE, INCLUDED Gene map locus 3q27 | BCL6/H4FM FUSION GENE, INCLUDED | Gene map locus 3q27 |
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| 28 | | | |
| 29 | *105590 ANAPLASTIC LYMPHOMA KINASE; ALK ALK/EML4 FUSION GENE, INCLUDED | ALK/EML4 FUSION GENE, INCLUDED | Gene map locus 2p23 |
| 30 | | | |

低版本Excel的自动筛选问题

无法选择非空行，不支持空值("")

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| | A | B | C |
|----|--|--|---|
| 1 | +159555 MYELOID/LYMPHOID OR MIXED LINEAGE LEUKEMIA GENE; MLL MIXED LINEAGE LEUKEMIA, INCLUDED Gene map locus 11q23 | MIXED LINEAGE LEUKEMIA, INCLUDED 我不是 我不是 我不是 | Gene map locus 11q23 我不是 我不是 我不是 |
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| 5 | *600618 ETS VARIANT GENE 6; ETV6 ETV6/PDGFRB FUSION GENE, INCLUDED Gene map locus 12p13 | ETV6/PDGFRB FUSION GENE, INCLUDED 我不是 我不是 我不是 | Gene map locus 12p13 我不是 我不是 我不是 |
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| 9 | *133450 EWING SARCOMA BREAKPOINT REGION 1; EWSR1 EWS/FLI1 FUSION GENE, INCLUDED Gene map locus 22q12 | EWS/FLI1 FUSION GENE, INCLUDED 我不是 我不是 我不是 | Gene map locus 22q12 我不是 我不是 我不是 |
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| 13 | *601021 NUCLEOPORIN, 98-KD; NUP98 NUP98-NUP96 PRECURSOR PROTEIN, INCLUDED Gene map locus 11p15 | NUP98-NUP96 PRECURSOR PROTEIN, INCLUDED 我不是 我不是 我不是 | Gene map locus 11p15 我不是 我不是 我不是 |
| 14 | | | |
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| 17 | *151385 RUNT-RELATED TRANSCRIPTION FACTOR 1; RUNX1 AML1/TEL FUSION GENE, INCLUDED Gene map locus 21q22.3 | AML1/TEL FUSION GENE, INCLUDED 我不是 我不是 我不是 | Gene map locus 21q22.3 我不是 我不是 我不是 |
| 18 | | | |
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| 21 | *600698 HIGH MOBILITY GROUP AT-HOOK 2; HMGA2 HMGC/LPP FUSION GENE, INCLUDED Gene map locus 12q14.3 | HMGC/LPP FUSION GENE, INCLUDED 我不是 我不是 我不是 | Gene map locus 12q14.3 我不是 我不是 我不是 |
| 22 | | | |
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| 25 | *109565 B-CELL LYMPHOMA 6; BCL6 BCL6/H4FM FUSION GENE, INCLUDED | BCL6/H4FM FUSION GENE, INCLUDED 我不是 | Gene map locus 3q27 我不是 |
| 26 | | | |

Proteins perform many of life's most essential functions. To carry out their specific roles, they often

= IF(RIGHT (A2,8) =
“INCLUDED”, A2, “我不是”)

URL: DOEgenomesToLife.org

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GenBank >> OMIM >> Search for “fusion gene”

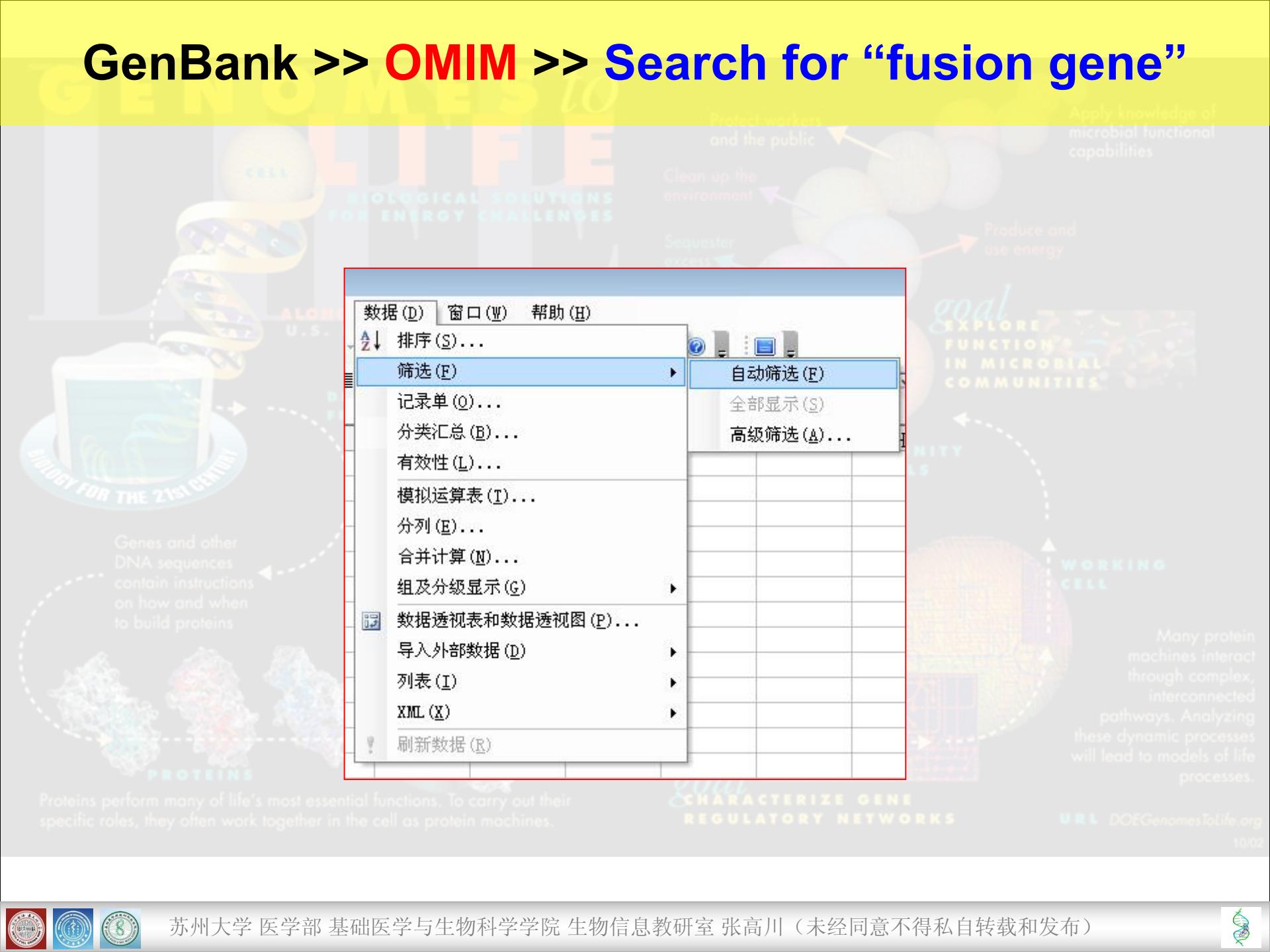
| | A | B | C |
|----|--|--|---|
| 1 | +159555 MYELOID/LYMPHOID OR MIXED LINEAGE LEUKEMIA GENE; MLL MIXED LINEAGE LEUKEMIA, INCLUDED Gene map locus 11q23 | MIXED LINEAGE LEUKEMIA, INCLUDED 我不是 我不是 我不是 | Gene map locus 11q23 我不是 我不是 我不是 |
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| 5 | *600618 ETS VARIANT GENE 6; ETV6 ETV6/PDGFRB FUSION GENE, INCLUDED Gene map locus 12p13 | ETV6/PDGFRB FUSION GENE, INCLUDED 我不是 我不是 我不是 | Gene map locus 12p13 我不是 我不是 我不是 |
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| 9 | *133450 EWING SARCOMA BREAKPOINT REGION 1; EWSR1 EWS/FLI1 FUSION GENE, INCLUDED Gene map locus 22q12 | EWS/FLI1 FUSION GENE, INCLUDED 我不是 我不是 我不是 | Gene map locus 22q12 我不是 我不是 我不是 |
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| 13 | *601021 NUCLEOPORIN, 98-KD; NUP98 NUP98-NUP96 PRECURSOR PROTEIN, INCLUDED Gene map locus 11p15 | NUP98-NUP96 PRECURSOR PROTEIN, INCLUDED 我不是 我不是 我不是 | Gene map locus 11p15 我不是 我不是 我不是 |
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| 17 | *151385 RUNT-RELATED TRANSCRIPTION FACTOR 1; RUNX1 AML1/TEL FUSION GENE, INCLUDED Gene map locus 21q22.3 | AML1/TEL FUSION GENE, INCLUDED 我不是 我不是 我不是 | Gene map locus 21q22.3 我不是 我不是 我不是 |
| 18 | | | |
| 19 | | | |
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| 21 | *600698 HIGH MOBILITY GROUP AT-HOOK 2; HMGA2 HMGC/LPP FUSION GENE, INCLUDED Gene map locus 12q14.3 | HMGC/LPP FUSION GENE, INCLUDED 我不是 我不是 我不是 | Gene map locus 12q14.3 我不是 我不是 我不是 |
| 22 | | | |
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| 25 | *109565 B-CELL LYMPHOMA 6; BCL6 BCL6/H4FM FUSION GENE, INCLUDED | BCL6/H4FM FUSION GENE, INCLUDED 我不是 | Gene map locus 3q27 我不是 |
| 26 | | | |

Proteins perform many of life's most essential functions. To carry out their specific roles, they often work together in the cell as protein machines.

= IF(ISERROR (FIND ("Gene map locus", A3)), "我不是" , A3)



GenBank >> OMIM >> Search for “fusion gene”



GenBank >> OMIM >> Search for “fusion gene”

| | A | B | C |
|----|--|-----------------------------------|---|
| 1 | +159555 MYELOID/LYMPHOID OR MIXED LINEAGE LEUKEMIA GENE; ML | MIXED LINEAGE LEUKEMIA, INCLUDED | Gene map locus 11q23 |
| 2 | MIXED LINEAGE LEUKEMIA, INCLUDED | 我不是 | 我不是 |
| 3 | Gene map locus 11q23 | 我不是 | 我不是 |
| 4 | | 我不是 | 我不是 |
| 5 | *600618 ETS VARIANT GENE 6; ETV6 | ETV6/PDGFRB FUSION GENE, INCLUDED | Gene map locus 12p13 |
| 6 | ETV6/PDGFRB FUSION GENE, INCLUDED | 我不是 | 我不是 |
| 7 | Gene map locus 12p13 | 我不是 | 我不是 |
| 8 | | 我不是 | 我不是 |
| 9 | *133450 EWING SARCOMA BREAKPOINT REGION | EXCLUDED | Gene map locus 22q12 |
| 10 | EWS/FLI1 FUSION GENE, INCLUDED | 我不是 | 我不是 |
| 11 | Gene map locus 22q12 | 我不是 | 我不是 |
| 12 | FOR THE 21ST CENTURY | 我不是 | 我不是 |
| 13 | *601021 NUCLEOPORIN, 98-KD; NUP98 | PROTEIN, IN | Gene map locus 11p15 |
| 14 | NUP98-NUP96 PRECURSOR PROTEIN, INCLUDED | 我不是 | 我不是 |
| 15 | Gene map locus 11p15 | 我不是 | 我不是 |
| 16 | on how and when | 我不是 | 我不是 |
| 17 | *151385 RUNT-RELATED TRANSCRIPTION FACTOR 1 | EXCLUDED | Gene map locus 21q22.3 |
| 18 | AML1/TEL FUSION GENE, INCLUDED | 我不是 | machines interact |
| 19 | Gene map locus 21q22.3 | 我不是 | through complex |
| 20 | | 我不是 | interconnected |
| 21 | *600698 HIGH MOBILITY GROUP AT-HOOK 2; HMGA2 | HMGIC/LPP FUSION GENE, INCLUDED | pathways. Analyzing |
| 22 | HMGIC/LPP FUSION GENE, INCLUDED | 我不是 | the essential processes |
| 23 | Gene map locus 12q14.3 | 我不是 | of life |
| 24 | essential functions. To carry out their | CHARACTERIZE GENE | processes. |
| 25 | roles, they often work together in the cell as protein machines. | REGULATORY NETWORKS | http://www.ncbi.nlm.nih.gov/genomeslife.org |
| 26 | *109565 B-CELL LYMPHOMA 6; BCL6 | BCL6/H4FM FUSION GENE, INCLUDED | 10/02 |
| | BCL6/H4FM FUSION GENE, INCLUDED | 我不是 | Gene map locus 3q27 |

自定义自动筛选方式

显示行:

MIXED LINEAGE LEUKEMIA, INCLUDED

不等于

与 (A) 或 (B)

可用 ? 代表单个字符
用 * 代表任意多个字符



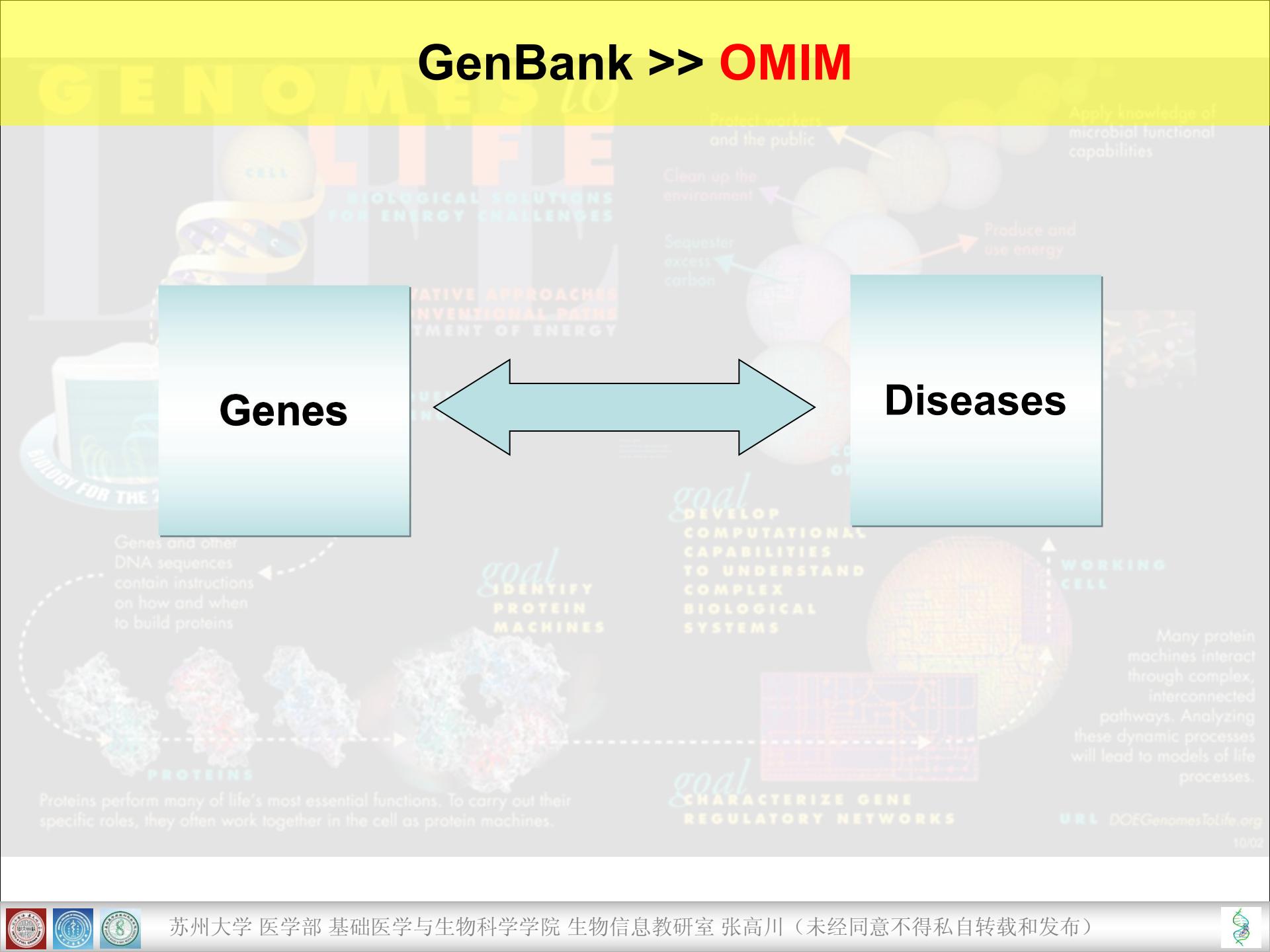
GenBank >> OMIM >> Search for “fusion gene”

| | A | B | C |
|-----|--|---|-----------------------------|
| 1 | +159555 MYELOID/LYMPHOID OR MIXED LINEAGE LEUKEMIA GENE; ML | MIXED LINEAGE LEUKEMIA, INCLUDED | Gene map locus 11q23.1 |
| 5 | *600618 ETS VARIANT GENE 6; ETV6 | ETV6/PDGFRB FUSION GENE, INCLUDED | Gene map locus 12p13 |
| 9 | *133450 EWING SARCOMA BREAKPOINT REGION 1; EWSR1 | EWS/FLI1 FUSION GENE, INCLUDED | Gene map locus 22q12 |
| 13 | *601021 NUCLEOPORIN, 98-KD; NUP98 | NUP98-NUP96 PRECURSOR PROTEIN, IN | Gene map locus 11p15 |
| 17 | *151385 RUNT-RELATED TRANSCRIPTION FACTOR 1; RUNX1 | AML1/TEL FUSION GENE, INCLUDED | Gene map locus 21q22.3 |
| 21 | *600698 HIGH MOBILITY GROUP AT-HOOK 2; HMGA2 | HMGIC/LPP FUSION GENE, INCLUDED | Gene map locus 12q14.3 |
| 25 | *109565 B-CELL LYMPHOMA 6; BCL6 | BCL6/H4FM FUSION GENE, INCLUDED | Gene map locus 3q27 |
| 29 | *105590 ANAPLASTIC LYMPHOMA KINASE; ALK | ALK/EML4 FUSION GENE, INCLUDED | Gene map locus 2p23 |
| 33 | *168461 CYCLIN D1; CCND1 | CCND1/IGHG1 FUSION GENE, INCLUDED | Gene map locus 11q13 |
| 37 | *173410 PLATELET-DERIVED GROWTH FACTOR RECEPTOR, BETA; PDGF | PDGFRB/ETV6 FUSION GENE, INCLUDED | Gene map locus 5q31-q33 |
| 41 | *180240 RETINOIC ACID RECEPTOR, ALPHA; RARA | ACUTE PROMYELOCYTIC LEUKEMIA BRI | Gene map locus 17q21.1 |
| 45 | #114480 BREAST CANCER | BREAST CANCER, FAMILIAL MALE, INCL | Gene map locus 17q21, 18q12 |
| 49 | *137070 FUSED IN SARCOMA; FUS | FUS/ATF1 FUSION GENE, INCLUDED | Gene map locus 16p11.2 |
| 59 | +601728 PHOSPHATASE AND TENSIN HOMOLOG; PTEN | PTEN HAMARTOMA TUMOR SYNDROME, | Gene map locus 10q23.3 |
| 63 | *314310 TRANSCRIPTION FACTOR FOR IMMUNOGLOBULIN HEAVY-CHAIN | TFE3/ASPSCR1 FUSION GENE, INCLUDE | Gene map locus Xp11.22 |
| 67 | *136350 FIBROBLAST GROWTH FACTOR RECEPTOR 1; FGFR1 | FGFR1/BCR FUSION GENE, INCLUDED | Gene map locus 8p11.2-p10.2 |
| 71 | *189980 ABELSON MURINE LEUKEMIA VIRAL ONCOGENE HOMOLOG 1; ABL1 | ABL1/BCR FUSION GENE, INCLUDED | Gene map locus 9q34.1 |
| 75 | *151410 BREAKPOINT CLUSTER REGION; BCR | BCR/ABL FUSION GENE, INCLUDED | Gene map locus 22q11.2 |
| 79 | *165080 V-ETS AVIAN ERYTHROBLASTOSIS VIRUS E26 ONCOGENE HOMOLOG 1; ERG | ERG1, INCLUDED | Gene map locus 21q22.3 |
| 83 | #211980 LUNG CANCER | ALVEOLAR CELL CARCINOMA, INCLUDE | Gene map locus 17q21.1 |
| 87 | *603026 PLEOMORPHIC ADENOMA GENE 1; PLAG1 | PLA2R1/INNB1 FUSION GENE, INCLUDE | Gene map locus 8q12 |
| 91 | *107910 CYTOCHROME P450, FAMILY 19, SUBFAMILY 1, POLYMERASE 1; CYP19A1 | CYP19A1/BCR FUSION GENE, INCLUDE | Gene map locus 15q21.1 |
| 95 | *164757 V-RAF MURINE SARCOMA VIRAL ONCOGENE, ISOFORM 1; BRAF | V-RAF MURINE SARCOMA VIRAL ONCOGENE, INCLUDED | Gene map locus 7q34 |
| 99 | *147141 TRANSCRIPTION FACTOR 3; TCF3 | TCF3/BCR FUSION GENE, INCLUDED | Gene map locus 19p13.3 |
| 103 | *600542 NUCLEAR RECEPTOR SUBFAMILY 1, GROUP A, MEMBER 1; NR1A1 | NR1A1/BCR FUSION GENE, INCLUDED | Gene map locus 9q22 |

进一步处理问题！



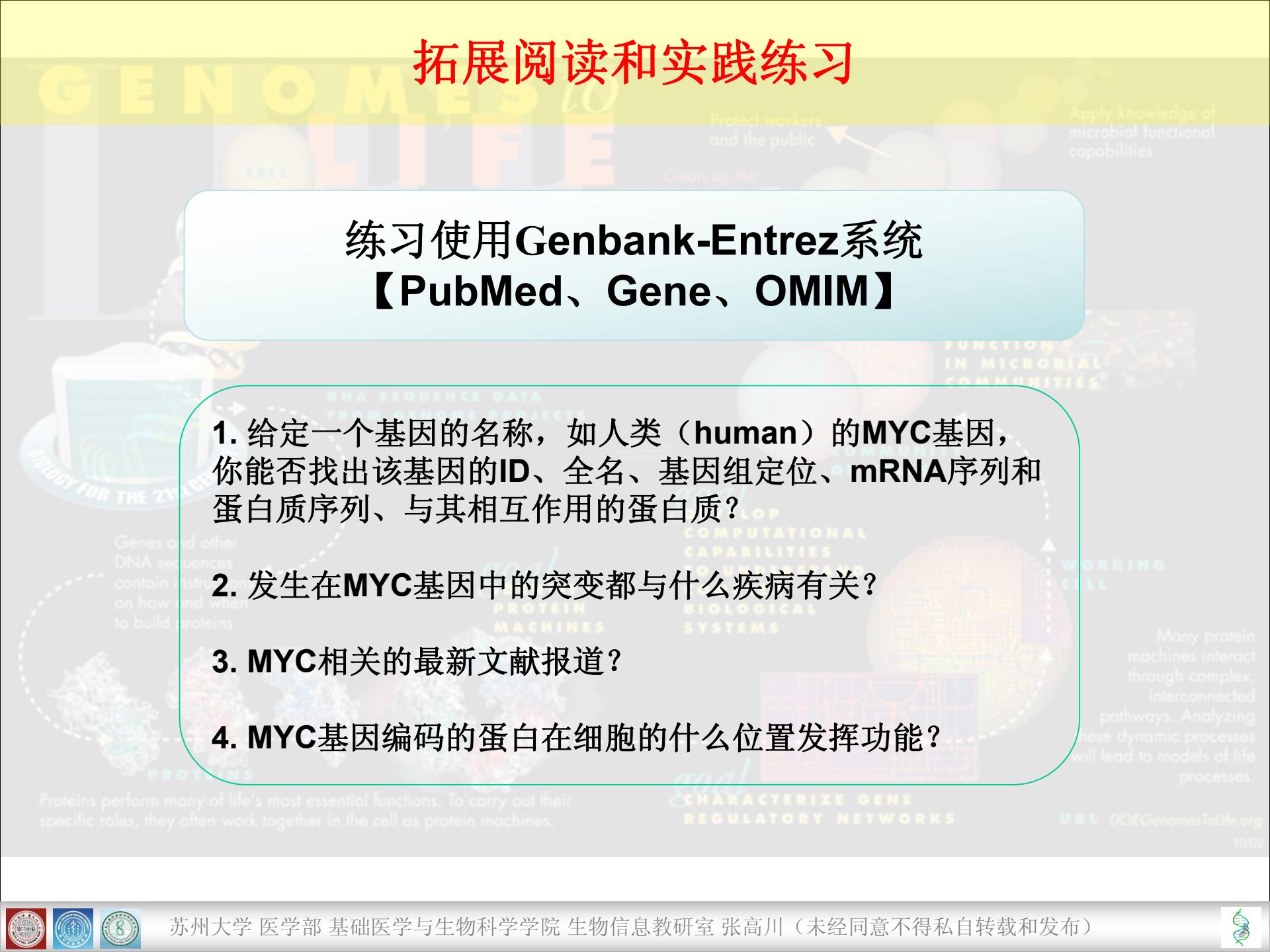
GenBank >> OMIM



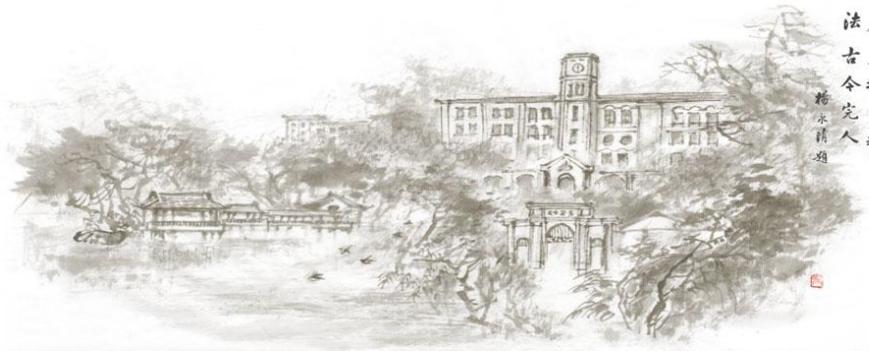
拓展阅读和实践练习

练习使用Genbank-Entrez系统 【PubMed、Gene、OMIM】

1. 给定一个基因的名称，如人类（human）的**MYC**基因，你能否找出该基因的**ID**、全名、基因组定位、**mRNA**序列和蛋白质序列、与其相互作用的蛋白质？
2. 发生在**MYC**基因中的突变都与什么疾病有关？
3. **MYC**相关的最新文献报道？
4. **MYC**基因编码的蛋白在细胞的什么位置发挥功能？



法養
天地正氣
古今完人
楊永清題



Thanks for your attention!

