

IMGT® resources for cancer research

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IMGT®, the international ImMunoGeneTics information system® is the international reference in immunogenetics and immunoinformatics [1]. IMGT® provides a high quality integrated knowledge resource, specialized in immunoglobulins (IG), T cell receptors (TR), major histocompatibility complex (MHC) of human and other vertebrates, and related proteins of the immune system (RPI), which belong to the immunoglobulin superfamily (IgSF) and to the MHC superfamily (MhcSF). IMGT® includes six databases, Web resources which consist of more than 10,000 HTML pages, and fifteen interactive tools. The accuracy and the consistency of the IMGT® data are based on IMGT-ONTOLOGY, the first ontology for immunogenetics and immunoinformatics. IMGT® components are of a particular interest in cancer research as they provide international standards, for example in the analysis of IG and TR in lymphomas and leukemias, and standardized criteria for antibody humanization and engineering of therapeutic recombinant monoclonal antibodies.

1 IMGT/GENE-DB database

provides an easy and common access to the variable (V), diversity (D), joining (J) and constant (C) IG and TR genes and alleles [2]. Human IMGT gene names were approved in 1999 by the HUGO nomenclature committee (HGNC) and by the World Health Organization-International Union of Immunological Societies (WHO-IUIS) [3]. The IMGT gene nomenclature is based on the CLASSIFICATION axiom and concepts of IMGT-ONTOLOGY [4].

IMGT gene name and definition
IMGT gene name: IGHV3-21
IMGT gene definition: Homo sapiens IGHV3-21 Immunoglobulin heavy variable 3-21

Chromosomal localization
Locus name: Homo sapiens IGH locus
Chromosome: 14
Chromosomal localization: 14q32.33
Number of alleles: 2

IMGT reference alleles

IGHV3-21 allele names	Gene functionality	R	T	Pr	Clone names	Accession numbers	Molecule type
IGHV3-21*01	F	+	+	+	-	AB019439	gDNA
IGHV3-21*02	F				V3-21	M99658	gDNA

IMGT/GENE-DB reference sequences (in FASTA format) for the allele(s): IGHV3-21*01, IGHV3-21*02

- Nucleotide sequences with gaps according to the IMGT unique numbering
- Nucleotide sequences without gaps
- Amino acid sequences with gaps according to the IMGT unique numbering
- Amino acid sequences without gaps

Other sequences from the literature (compiled in IMGT Gene tables, IMGT Repertoire)

IGHV3-21 allele names	Gene functionality	R	T	Pr	Clone names	Accession numbers	Molecule type
IGHV3-21*01	F	+	+	+	WHG16	X62127	gDNA
					HHG4	X62129	gDNA
					DP-77	Z14073	gDNA

IMGT Repertoire links

Locus and genes	Proteins and alleles	2D and 3D structures	Probes and RFLP	Gene regulation and expression	Genes and clinical entities
Locus representation, Gene table, Chromosomal localization, Protein displays	Alignment of alleles, Table of alleles	FR-IMGT and CDR-IMGT lengths, Collier de Perles (IMGT numbering)	Phages	cDNA	Translocations and inversions, Translocations and inversions

Known IMGT/LIGM-DB cDNA sequences for Homo sapiens IGHV3-21

D63686 L02258 L02260 L04329 L28905 L28911 L29155 U05058 U05072 U06787 U21270 U43754 U64497 U77372 U81383 U95238 X61023 X61235 X78168 X7854 X8932 X8934 X8935 X8936 X8937 X8938 X8939 X8944 X8945 X8946 X8947 X8948 X8949 X8951 X8952 X8954 X8955 X8956 X8957 X8958 X8959 X8960 X8961 X8962 X8963 X8964 X8965 X8966 X8967 X8968 X8969 X8970 X8971 X8972 X8973 X8974 X8975 X8976 X8977 X8978 X8979 X8980 X8981 X8982 X8983 X8984 X8985 X8986 X8987 X8988 X8989 X8990 X8991 X8992 X8993 X8994 X8995 X8996 X8997 X8998 X8999 X9000 X9001 X9002 X9003 X9004 X9005 X9006 X9007 X9008 X9009 X9010 X9011 X9012 X9013 X9014 X9015 X9016 X9017 X9018 X9019 X9020 X9021 X9022 X9023 X9024 X9025 X9026 X9027 X9028 X9029 X9030 X9031 X9032 X9033 X9034 X9035 X9036 X9037 X9038 X9039 X9040 X9041 X9042 X9043 X9044 X9045 X9046 X9047 X9048 X9049 X9050 X9051 X9052 X9053 X9054 X9055 X9056 X9057 X9058 X9059 X9060 X9061 X9062 X9063 X9064 X9065 X9066 X9067 X9068 X9069 X9070 X9071 X9072 X9073 X9074 X9075 X9076 X9077 X9078 X9079 X9080 X9081 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X9580 X9581 X9582 X9583 X9584 X9585 X9586 X9587 X9588 X9589 X9590 X9591 X9592 X9593 X9594 X9595 X9596 X9597 X9598 X9599 X9600 X9601 X9602 X9603 X9604 X9605 X9606 X9607 X9608 X9609 X9610 X9611 X9612 X9613 X9614 X9615 X9616 X9617 X9618 X9619 X9620 X9621 X9622 X9623 X9624 X9625 X9626 X9627 X9628 X9629 X9630 X9631 X9632 X9633 X9634 X9635 X9636 X9637 X9638 X9639 X9640 X9641 X9642 X9643 X9644 X9645 X9646 X9647 X9648 X9649 X9650 X9651 X9652 X9653 X9654 X9655 X9656 X9657 X9658 X9659 X9660 X9661 X9662 X9663 X9664 X9665 X9666 X9667 X9668 X9669 X9670 X9671 X9672 X9673 X9674 X9675 X9676 X9677 X9678 X9679 X9680 X9681 X9682 X9683 X9684 X9685 X9686 X9687 X9688 X9689 X9690 X9691 X9692 X9693 X9694 X9695 X9696 X9697 X9698 X9699 X9700 X9701 X9702 X9703 X9704 X9705 X9706 X9707 X9708 X9709 X9710 X9711 X9712 X9713 X9714 X9715 X9716 X9717 X9718 X9719 X9720 X9721 X9722 X9723 X9724 X9725 X9726 X9727 X9728 X9729 X9730 X9731 X9732 X9733 X9734 X9735 X9736 X9737 X9738 X9739 X9740 X9741 X9742 X9743 X9744 X9745 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