

## Search History:

### Limited Classification Search

The Patent Analyst performed a limited classification search within the following US, IPC, CPC, ECLA, or F-Term classification areas:

CPC Class/Subclass(es): A61K 2039/505; C07K 16/00; C07K 16/1271; C12N 5/0635 (2018.05)

IPC (8) Class/Subclass(es): A61K 35/28; A61K 39/00; A61K 39/395 (2018.01)

U.S. Class/Subclass(es): 424/577; 435/326; 435/332; 435/334

See Global Search Results.

### Global Patent Literature Text Search

The Patent Analyst performed the following global text search, which was not limited by classification but may or may not have been limited by other criteria:

Minesoft PatBase: <https://www.patbase.com>

#	Search query	Results
1	PA=("VANDERBILT_UNIERSITY" OR "VANDERBILT_UNINERSITY" OR "VANDERBILT_UNIV" OR "VANDERBILT_UNIV_405_KIRKLAND_HALL_NASHVILLE_TN_372" OR "VANDERBILT_UNIV_A_CORP_OF_TENNESSEE" OR "VANDERBILT_UNIV_A_CORP_OF_TN" OR "VANDERBILT_UNIV_A_TENNESSEE_CORP" OR "VANDERBILT_UNIV_AS" OR "VANDERBILT_UNIV_A_NOT_FOR_PROFIT_TN_CORP" OR "VANDERBILT_UNIV_CENTER_FOR_TECH_TRANSFER_AND_COMMERCIALIZATION" OR "VANDERBILT_UNIV_CENTER_FOR_TECHNOLOGY_TRANSFER_AND" OR "VANDERBILT_UNIV_CENTER_FOR_TECHNOLOGY_TRANSFER_AND_COMMERCIALIZATION" OR "VANDERBILT_UNIV_CT_FOR_TECHNOLOGY_TRANSFER_AND_COMMERCIALIZATION" OR "VANDERBILT_UNIV_MEDICAL" OR "VANDERBILT_UNIV_MEDICAL_CENTER" OR "VANDERBILT_UNIV_MEDICAL_CENTER_OFFICE_OF_TECHNOLOGY_TRANSFFR_AND_ENTERPRISE_DEVELOPMENT" OR "VANDERBILT_UNIV_MEDICAL_CT" OR "VANDERBILT_UNIV_NASHVILL" OR "VANDERBILT_UNIV_NASHVILLE" OR "VANDERBILT_UNIV_NASHVILLE_T_A_CORP_OF" OR "VANDERBILT_UNIV_NASHVILLE_TENN" OR "VANDERBILT_UNIV_NASHVILLE_TENNESSEE_A_CORP_OF_TENN" OR "VANDERBILT_UNIV_NASHVILLE_TENNESSEE_A_CORP_OF_TENNESSEE" OR "VANDERBILT_UNIV_NASHVILLE_TENNESSEE_A_CORP_OF_TN" OR "VANDERBILT_UNIV_NASHVILLE_TN" OR	1031

<p>"VANDERBILT_UNIV_OFFICE_O" OR "VANDERBILT_UNIV_OFFICE_OF_TECHNOLOGY_TRANS FER_AND_" OR "VANDERBILT_UNIV_OFFICE_OF_TECHNOLOGY_TRANS FER_AND_ENTERPRISE_DEVELOPMENT" OR "VANDERBILT_UNIV_OREGON_HEALTH_AND_SCIENCE_ UNIV" OR "VANDERBILT_UNIV_US_G" OR "VANDERBILT_UNIV_US_GOV" OR "VANDERBILT_UNIV105_ _1207_17TH_AVENUE_SOUTHNASHVILLETN37212US" OR "VANDERBILT_UNIV305_KIRKLAND_HALLNASHVILLETN3 7240US" OR "VANDERBILT_UNIVCENTER_FOR_TECHNOLOGY_TRAN SFER_ANDCOMMERCIALIZATION305_KIRKLAND_HALL22 01_WEST_END_AVENUENASHVILLETN37240US" OR "VANDERBILT_UNIVERISTY" OR "VANDERBILT_UNIVERSITY" OR "VANDERBILT_UNIVERSITY_CENTER_FOR_TECHNOLOG Y_TRANSFER_AND_COMMERCIALIZATION" OR "VANDERBILT_UNIVERSITY_CENTER_FOR_TECHNOLOG Y_" OR "VANDERBILT_UNIVERSITY_CT_FOR_TECHNOLOGY_TR ANSFER_AND_COMMERCIALIZATION" OR "VANDERBILT_UNIVERSITY_CT_FOR_TECHNOLOGY_" OR "VANDERBILT_UNIVERSITY_MEDICAL" OR "VANDERBILT_UNIVERSITY_MEDICAL_CENTER" OR "VANDERBILT_UNIVERSITY_MEDICAL_CENTER_OFFICE_ OF_TECHNOLOGY_TRANSFER_AND_ENTERPRISE_DEVE LOPMENT" OR "VANDERBILT_UNIVERSITY_MEDICAL_CT" OR "VANDERBILT_UNIVERSITY_NASHVILL" OR "VANDERBILT_UNIVERSITY_NASHVILLE" OR "VANDERBILT_UNIVERSITY_NASHVILLE_TENN" OR "VANDERBILT_UNIVERSITY_NASHVILLE_TENN_US" OR "VANDERBILT_UNIVERSITY_OFFICE_O" OR "VANDERBILT_UNIVERSITY_OFFICE_OF_TECHNOLOGY_ TRANSFE" OR "VANDERBILT_UNIVERSITY_OFFICE_OF_TECHNOLOGY_ TRANSFER" OR "VANDERBILT_UNIVERSITY_OFFICE_OF_TECHNOLOGY_ TRANSFER_AND_ENTERPRISE_DEVELOPMENT" OR "VANDERBILT_UNIVERSITY_THE_UNITED_STATES_GOV ERNMENT" OR "VANDERBILT_UNIVERSITY_THE_UNITED_STATES_GOV ERNMENT_AS_REPRESENTED_BY_THE_DEPARTMENT_ OF_VERTERANS_AFFAIRS" OR "VANDERBILT_UNIVERSITY_THE_US_G" OR "VANDERBILT_UNIVERSITY_AND_INTR" OR "VANDERBILT_UNIVERSITY_AND_INTROGEN_THERAPEU TICS_IN" OR "VANDERBILT_UNIVFRSITY_AND_INTROGEN_THERAPEU TICS_INC" OR "VANDERBILT_UNIVERSITY_AND_TENN" OR "VANDERBILT_UNIVERSITY_AND_TENNESSEE_VALLEY_ AUTHORI" OR "VANDERBILT_UNIVERSITY_AND_TENNESSEE_VALLEY_ AUTHORITY" OR "VANDERBILT_UNIVERSTIY" OR</p>	
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	"VANDERBILT_UNIVESITY" OR "VANDERBILT_UNIV_AND_INTR" OR "VANDERBILT_UNIV_AND_INTROGEN_THERAPEUTICS_I NC" OR "VANDERBILT_UNIV_AND_TENN" OR "VANDERBILT_UNIVERSITY" OR "VANDERBILT_UNVIERSITY")	
2	INV=("SMITH_SCOTT" OR "SMITH_SCOTT_A" OR "SMITH_SCOTT_ALAN" OR "SMITH_SCOTT_ALEX" OR "SMITH_SCOTT_ALEXANDER" OR "SMITH_SCOTT_ALLAN" OR "SMITH_SCOTT_ALLEN" OR "SMITH_SCOTT_ANDREW" OR "SMITH_SCOTT_AUS")	293
3	1 AND 2	3
4	(rh IL 21)	5
5	4 AND BAFF	0
6	5 AND (CD 40L)	0
7	recombinant w5 (IL 21)	164
8	recombinant w3 (IL 21)	141
9	8 AND BAFF	20
10	9 AND (CD 40 L)	1
11	(PN=(US9709574))	1
12	hybridoma w5 IgE	100
13	12 AND PBMC	17
14	13 AND BAFF	1
15	13 AND (CD 40 L)	0
16	(PN=(EP3176178))	1
17	hybridoma w3 IgE	74
18	17 AND PBMC	10
19	18 AND (BAFF OR (IL 21))	1
20	PBMC w3 IgE	32
21	20 AND BAFF	2
22	(PN=(US9709574))	1
23	(PN=(WO2007068758))	1
24	(PN=(WO2015001510))	1
25	(IC=(A61K35/28 OR A61K39/00 OR A61K39/395))	75265
26	(CPC=(C12N5/0635 OR A61K2039/505 OR C07K16/00 OR C07K16/1271))	16176
27	(UC=(424/577 OR 435/326 OR 435/332 OR 435/334))	2687

28	12 AND 25	64
29	12 AND 26	31
30	12 AND 27	5

**Google Patents: <https://patents.google.com>**

#	Search query	Results
1	"fusing" activated PBMC with immortal cell screening	4,790
2	IgE producing B-cell immortalized	21,200
3	IgE producing B-cell	113,000
4	identifying an IgE epitope in an allergen by mapping the binding of an IgE antibody binding site	20,400

**Computer Accessed Text Databases Searched**

The Patent Analyst searched the following computer accessed text databases:

**PubMed.gov (NCBI): <http://www.ncbi.nlm.nih.gov/pubmed>**

#	Search query	Results
1	Search Smith, Scott A[Author]	48
2	Search (Smith, Scott A[Author]) AND IgE	1

**Google: <https://www.google.com/>**

#	Search query	Results
1	PBMC culture CD40L BAFF rh-IL-21	12,400
2	PBMC culture CD40L BAFF rh-IL-21 produce IgE	75,570
3	PBMC expressing IgE CD40L BAFF	12,900
5	"fusing" activated PBMC with immortal cell screening\	39,300
6	screening PBMC cells for IgE expression hybridoma generation	23,300

Date search was completed: 15 May 2018

BK/JJ