

Table SINV-16

International patent families granted in analysis of biological materials, by region, country, or economy: 1998–2020

(Number)

Region, country, or economy	Economy by income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
World	na	1,525	1,527	1,390	1,362	1,586	2,063	2,336	1,744	1,938	2,102	2,125	2,208	2,550	2,785	3,188	3,533	3,894	4,585	4,531	4,602	4,615	4,761	4,865
North America	na	488	460	389	433	395	548	510	302	363	361	385	397	515	468	466	477	526	617	571	679	669	693	664
Canada	High	29	21	20	22	25	38	34	16	24	22	27	20	28	25	30	27	29	37	27	34	40	36	36
Mexico	Upper middle	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	2	6	7	9	7	0
United States	High	459	439	369	411	370	510	475	285	338	339	357	377	487	442	436	449	495	578	538	638	620	650	628
Central America and Caribbean	na	1	1	1	1	0	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
Puerto Rico	High	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South America	na	4	1	1	2	2	3	4	3	4	1	3	1	1	3	4	6	3	7	9	11	15	14	21
Argentina	Upper middle	1	1	1	0	1	1	2	1	1	0	0	0	1	1	0	0	1	0	1	0	0	0	0
Brazil	Upper middle	2	0	0	2	0	2	2	2	1	0	1	1	1	2	3	5	1	2	7	8	12	12	19
Europe	na	643	627	608	496	647	811	991	712	749	748	811	797	771	883	926	990	961	1,066	930	1,094	1,022	1,041	853
EU-27 + UK ^a	na	297	294	302	293	315	393	451	302	367	330	324	366	374	396	418	435	418	427	432	456	435	425	402
United Kingdom	High	45	40	39	36	42	54	67	47	48	45	43	41	37	41	35	28	33	26	35	31	28	30	29
EU-27 ^b	na	252	254	263	258	272	339	383	255	320	285	281	325	337	355	382	407	385	401	397	425	407	395	372
Austria	High	6	8	4	9	10	11	9	5	10	6	14	8	9	9	11	9	10	12	12	17	10	8	12
Belgium	High	4	6	2	7	9	10	13	7	6	8	12	9	9	6	7	10	9	10	13	15	9	19	15
Denmark	High	5	7	4	8	4	5	7	4	6	6	6	5	9	8	8	7	9	3	7	4	5	11	9
Finland	High	5	13	10	12	9	10	10	9	8	3	6	10	6	3	3	4	7	9	9	8	10	13	5
France	High	41	54	43	43	52	73	77	46	66	74	57	66	61	60	91	84	88	89	84	90	81	92	86
Germany	High	117	98	118	115	124	142	163	115	145	119	113	110	121	138	128	141	123	122	113	113	138	108	126
Hungary	High	1	0	2	1	0	1	1	2	1	0	1	1	2	2	2	3	2	1	2	2	1	4	0
Ireland	High	2	1	2	2	1	3	3	0	4	1	0	0	2	2	3	3	1	3	1	2	4	3	3
Italy	High	5	17	15	11	12	9	25	10	5	4	3	7	15	13	14	11	9	10	9	49	45	34	15
Netherlands	High	18	13	17	14	11	13	15	8	14	11	15	15	17	18	16	23	25	27	28	26	19	23	24
Spain	High	7	12	15	10	3	15	22	23	20	14	17	30	34	32	32	37	39	40	41	30	21	24	19
Sweden	High	13	9	20	15	20	24	19	9	12	15	19	21	18	14	18	19	21	19	17	17	20	17	13
Other Europe	na	346	333	306	202	332	418	541	410	382	418	487	431	397	487	508	555	543	640	499	638	587	617	451
Other Europe-2020 ^b	na	392	373	344	238	374	471	608	457	429	463	530	472	434	528	544	583	576	666	533	669	615	646	481
Belarus	Upper middle	1	1	2	0	0	0	1	0	2	2	2	2	3	4	3	2	5	2	2	3	3	0	2
Moldova	Lower middle	3	6	3	3	1	4	0	1	0	1	2	2	3	2	2	1	1	3	2	1	3	3	6
Norway	High	3	3	1	4	3	4	7	2	4	9	2	4	5	2	3	4	3	4	8	6	5	5	3
Russia	Upper middle	315	314	291	181	310	360	388	381	350	365	447	392	352	435	461	504	476	576	419	573	522	568	414
Switzerland	High	11	7	6	8	9	9	12	7	17	15	10	16	17	13	16	17	22	23	32	25	22	24	22

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Ukraine	Lower middle	12	3	2	6	9	40	132	17	8	23	22	15	16	31	21	26	34	30	34	28	31	15	0
Asia	na	327	359	316	346	425	463	597	621	728	905	855	951	1,199	1,385	1,746	2,011	2,354	2,849	2,980	2,763	2,849	2,950	3,252
China	Upper middle	4	5	13	24	15	63	105	116	152	154	142	263	315	432	681	871	1,213	1,827	2,049	1,671	1,751	1,836	2,017
India	Lower middle	1	2	1	1	1	4	3	3	3	5	5	4	9	5	7	7	7	10	9	14	12	18	13
Japan	High	298	307	268	274	363	323	411	364	389	498	503	508	640	618	596	581	577	510	463	462	444	474	527
Malaysia	Upper middle	0	0	0	0	0	1	0	0	0	1	0	0	2	4	0	5	2	6	4	5	3	0	1
Singapore	High	1	1	1	2	1	2	1	2	1	2	3	3	1	2	4	5	7	4	7	8	11	10	6
South Korea	High	15	37	24	34	30	54	54	111	150	216	169	145	200	284	396	454	438	383	364	518	551	538	628
Taiwan	High	5	6	8	10	12	16	21	26	31	26	33	26	31	41	58	82	107	108	79	76	72	67	56
Middle East	na	14	10	11	7	8	11	13	9	8	14	10	11	13	17	12	18	13	19	20	27	29	32	42
Israel	High	13	10	8	6	8	9	12	8	6	13	8	10	11	10	10	13	11	14	12	13	16	17	19
Africa	na	2	1	1	1	3	1	2	1	1	2	2	1	1	0	4	2	3	2	1	5	3	5	3
South Africa	Upper middle	2	0	0	0	0	0	0	0	0	1	2	0	1	0	0	1	0	1	0	2	2	3	2
Australia and Oceania	na	38	51	50	74	107	225	218	93	85	71	57	49	48	28	30	29	31	23	19	22	25	25	28
Australia	High	35	48	47	71	100	218	208	87	79	64	47	43	38	21	22	19	22	13	12	17	20	21	26
New Zealand	High	2	3	3	3	6	7	10	6	6	7	10	6	10	7	8	9	9	10	7	5	6	4	2
Unclassified	na	8	18	12	3	0	1	1	1	1	1	2	0	1	0	1	2	3	2	1	1	1	1	1

na = not applicable, metric not calculated at this level.

EU = European Union; UK = United Kingdom.

^a The United Kingdom was a part of the EU for data purposes from 1973 to 2019.^b Beginning in 2020, the United Kingdom was no longer a member of the EU.**Note(s):**

International Patent Documentation (INPADOC) patent families across all patent offices covered in the Worldwide Patent Statistical Database (PATSTAT) are counted according to the year of the first granted patent in the patent family. Patent families are allocated according to patent inventorship information found on the priority patent of the INPADOC patent families. To account for missing ownership information in PATSTAT for some offices, a method designed by de Rassenfosse et al. (2013) is used to fill missing information on priority patents using information in successive filings within the families. Priority patents not indexed in PATSTAT are replaced by the next utility patent(s) in the families according to filing dates. Patent families are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. Patents are classified under the World Intellectual Property Organization (WIPO) classification of patents, which classifies International Patent Classification (IPC) codes under 35 technical fields. IPC reformed codes take into account changes that were made to the WIPO classification in 2006 under the eighth version of the classification and were used to prepare these data. China includes Hong Kong. Data were extracted in June 2021. Because of data coverage issues for some patent offices in PATSTAT, statistics for some countries may be underestimated partially for some years or across the whole trend. Countries with identified issues include India (missing data) and South Africa (no data for 2018). For Italy, because of data gaps regarding information on granted patents, patent applications are used instead, which slightly overestimates Italy's output and creates a small shift in year for which its output is accounted. As patent authorities become more involved with the European Patent Organisation, these gaps should disappear in the future, strengthening the robustness of statistics for these countries.

Source(s):

National Center for Science and Engineering Statistics; Science-Metrix; PATSTAT, accessed October 2021.