

ALL USES OF ANIMALS

Uses of animals by species

Species	↑↓	2015 ↑↓	2016 ↑↓	2017 ↑↓	2018 ↑↓	2019 ↑↓	2020 ↑↓	2021 ↑↓
Mice		148529	166353	159566	172248	157301	144681	136628
Rats		48093	46842	37955	36360	36407	33028	25126
Guinea-Pigs		2643	3362	2932	2659	3905	2249	1991
Hamsters (Syrian)		172	152	282	292	6	108	239
Other rodents		86	4	3	13	23	0	12
Rabbits		1658	2349	2439	3116	2297	2344	4363
Cats		59	18	0	3	1	6	3
Dogs		64	175	69	357	365	527	328
Ferrets		0	2	4	0	0	0	0
Other carnivores		872	354	935	3077	3603	5948	0
Horses, donkeys and cross-breeds		109	312	55	178	47	11	48
Pigs		10396	7854	5481	6977	8478	8654	17131
Goats		11	6	1	13	51	27	8
Sheep		44	37	56	75	18	62	25
Cattle		505	386	3663	1997	980	451	1880
Other mammals		35	49	28	28	23	35	26
Domestic fowl		2335	1634	402	2283	1230	621	1534
Other birds		408	372	408	559	439	390	467
Reptiles		265	218	269	155	45	21	154
Rana		0	0	0	809	448	792	0
Xenopus		64	47	75	429	91	390	90
Other amphibians		26	23	47	94	59	6	137
Zebra fish		2530	3308	1587	2028	3935	7731	8401
Sea bass		0	0	0	0	0	0	2762
Salmon, trout, chars and graylings		0	0	0	0	0	0	8761
Other fish		17318	48591	15538	11888	24740	39745	2439
Total		236222	282448	231795	245638	244492	247827	212553

Uses of animals by severity

Severity	↑↓	2015 ↑↓	2016 ↑↓	2017 ↑↓	2018 ↑↓	2019 ↑↓	2020 ↑↓	2021 ↑↓
Non-recovery		20923	22758	22792	14016	10994	7599	5810
Mild [up to and including]		131596	176046	122831	149279	117092	119881	104139
Moderate		81597	79125	84437	79448	112295	116575	98941
Severe		2106	4519	1735	2895	4111	3772	3663
Total		236222	282448	231795	245638	244492	247827	212553

Proportions of uses of animals by severity

Severity	↑↓	2015 ↑↓	2016 ↑↓	2017 ↑↓	2018 ↑↓	2019 ↑↓	2020 ↑↓	2021 ↑↓
Non-recovery		8.86%	8.06%	9.83%	5.71%	4.5%	3.07%	2.73%
Mild [up to and including]		55.71%	62.33%	52.99%	60.77%	47.89%	48.37%	48.99%
Moderate		34.54%	28.01%	36.43%	32.34%	45.93%	47.04%	46.55%
Severe		0.89%	1.6%	0.75%	1.18%	1.68%	1.52%	1.72%
Total		100%	100%	100%	100%	100%	100%	100%

Uses of animals by genetic status

Genetic status	↑↓	2015 ↑↓	2016 ↑↓	2017 ↑↓	2018 ↑↓	2019 ↑↓	2020 ↑↓	2021 ↑↓
Not genetically altered		198761	241126	193368	208517	212476	210406	174854
Genetically altered without a harmful phenotype		25126	28019	26895	27959	26790	31738	31672
Genetically altered with a harmful phenotype		12335	13303	11532	9162	5226	5683	6027
Total		236222	282448	231795	245638	244492	247827	212553

Proportions of uses of animals by genetic status

Genetic status	↑↓	2015 ↑↓	2016 ↑↓	2017 ↑↓	2018 ↑↓	2019 ↑↓	2020 ↑↓	2021 ↑↓
Not genetically altered		84.14%	85.37%	83.42%	84.89%	86.91%	84.9%	82.26%
Genetically altered without a harmful phenotype		10.64%	9.92%	11.6%	11.38%	10.96%	12.81%	14.9%
Genetically altered with a harmful phenotype		5.22%	4.71%	4.98%	3.73%	2.14%	2.29%	2.84%
Total		100%	100%	100%	100%	100%	100%	100%

Reuse of animals

Reuse	↑↓	2015 ↑↓	2016 ↑↓	2017 ↑↓	2018 ↑↓	2019 ↑↓	2020 ↑↓	2021 ↑↓
No		236222	282448	231795	245638	244492	247827	212553
Total		236222	282448	231795	245638	244492	247827	212553

Uses of mammals

Species	↑↓	2015 ↑↓	2016 ↑↓	2017 ↑↓	2018 ↑↓	2019 ↑↓	2020 ↑↓	2021 ↑↓
Mice		148529	166353	159566	172248	157301	144681	136628
Rats		48093	46842	37955	36360	36407	33028	25126
Guinea-Pigs		2643	3362	2932	2659	3905	2249	1991
Hamsters (Syrian)		172	152	282	292	6	108	239
Other rodents		86	4	3	13	23	0	12
Rabbits		1658	2349	2439	3116	2297	2344	4363
Cats		59	18	0	3	1	6	3
Dogs		64	175	69	357	365	527	328
Ferrets		0	2	4	0	0	0	0
Other carnivores		872	354	935	3077	3603	5948	0
Horses, donkeys and cross-breeds		109	312	55	178	47	11	48
Pigs		10396	7854	5481	6977	8478	8654	17131
Goats		11	6	1	13	51	27	8
Sheep		44	37	56	75	18	62	25
Cattle		505	386	3663	1997	980	451	1880
Other mammals		35	49	28	28	23	35	26
Total		213276	228255	213469	227393	213505	198131	187808

Proportions of uses of mammals

Species	↑↓	2015 ↑↓	2016 ↑↓	2017 ↑↓	2018 ↑↓	2019 ↑↓	2020 ↑↓	2021 ↑↓
Mice		69.64%	72.88%	74.75%	75.75%	73.68%	73.02%	72.75%
Rats		22.55%	20.52%	17.78%	15.99%	17.05%	16.67%	13.38%
Guinea-Pigs		1.24%	1.47%	1.37%	1.17%	1.83%	1.14%	1.06%
Hamsters (Syrian)		0.08%	0.07%	0.13%	0.13%	0%	0.05%	0.13%
Other rodents		0.04%	0%	0%	0.01%	0.01%	0%	0.01%
Rabbits		0.78%	1.03%	1.14%	1.37%	1.08%	1.18%	2.32%
Cats		0.03%	0.01%	0%	0%	0%	0%	0%
Dogs		0.03%	0.08%	0.03%	0.16%	0.17%	0.27%	0.17%
Ferrets		0%	0%	0%	0%	0%	0%	0%
Other carnivores		0.41%	0.16%	0.44%	1.35%	1.69%	3%	0%
Horses, donkeys and cross-breeds		0.05%	0.14%	0.03%	0.08%	0.02%	0.01%	0.03%
Pigs		4.87%	3.44%	2.57%	3.07%	3.97%	4.37%	9.12%
Goats		0.01%	0%	0%	0.01%	0.02%	0.01%	0%
Sheep		0.02%	0.02%	0.03%	0.03%	0.01%	0.03%	0.01%
Cattle		0.24%	0.17%	1.72%	0.88%	0.46%	0.23%	1%
Other mammals		0.02%	0.02%	0.01%	0.01%	0.01%	0.02%	0.01%
Total		100%	100%	100%	100%	100%	100%	100%

Uses of non-human primates

Species	↑↓
No data available in table	

Proportions of uses of non-human primates

Species	↑↓
No data available in table	

USES OF ANIMALS BY MAIN CATEGORIES OF SCIENTIFIC PURPOSES

Uses of animals by main categories of scientific purposes

Purpose	↑↓	2015 ↑↓	2016 ↑↓	2017 ↑↓	2018 ↑↓	2019 ↑↓	2020 ↑↓	2021 ↑↓
Basic Research		83367	101789	78687	100547	89795	77015	76119
Translational and applied research		121312	150929	120538	113297	124661	142755	114364
Regulatory use and Routine production		22872	21502	19624	24188	20296	20280	14177
Protection of the natural environment in the interests of the health or welfare of human beings or animals		2642	1134	2869	1597	4803	3065	2782
Preservation of species		244	1491	5637	943	948	913	1167
Higher education or training for the acquisition, maintenance or improvement of vocational skills		5785	5543	4424	5066	3989	3799	0
Higher education		0	0	0	0	0	0	2497
Training for the acquisition, maintenance or improvement of vocational skills		0	0	0	0	0	0	1409
Forensic enquiries		0	60	16	0	0	0	38
Total		236222	282448	231795	245638	244492	247827	212553

BASIC RESEARCH RELATED USES

Basic research related uses

Purpose	↑↓	2015 ↑↓	2016 ↑↓	2017 ↑↓	2018 ↑↓	2019 ↑↓	2020 ↑↓	2021 ↑↓
Oncology		5165	6307	6451	21946	18505	10434	10912
Cardiovascular Blood and Lymphatic System		4793	4614	4163	5058	3714	2942	3345
Nervous System		11462	15772	18041	15608	16889	17374	15570
Respiratory System		1262	1601	2335	2608	279	859	472
Gastrointestinal System including Liver		2479	4614	2478	3585	6023	7313	7176
Musculoskeletal System		2560	2718	2458	2935	1447	1334	1080
Immune System		29147	18542	22526	25598	20683	16922	15894
Urogenital/Reproductive System		2617	1538	2220	1119	1631	2396	2144
Sensory Organs (skin, eyes and ears)		1462	856	77	401	364	497	500
Endocrine System/Metabolism		12397	13778	12331	11346	12021	13942	15024
Developmental Biology		0	0	0	0	0	0	136
Multisystemic		883	949	485	215	2309	1969	2092
Ethology / Animal Behaviour /Animal Biology		4895	25616	2224	6370	3633	644	1774
Other basic research		4245	4884	2898	3758	2297	389	0
Total		83367	101789	78687	100547	89795	77015	76119

TRANSLATIONAL AND APPLIED RESEARCH RELATED USES

Translational and applied research related uses

Purpose	↑↓	2015 ↑↓	2016 ↑↓	2017 ↑↓	2018 ↑↓	2019 ↑↓	2020 ↑↓	2021 ↑↓
Human Cancer		9096	27105	18419	8285	10162	18822	19036
Human Infectious Disorders		4683	6632	7665	7899	9524	10313	9373
Human Cardiovascular Disorders		1402	1786	2016	4200	4897	5006	4163
Human Nervous and Mental Disorders		35338	34632	31069	26818	25171	20034	21098
Human Respiratory Disorders		75	136	176	48	324	316	724
Human Gastrointestinal Disorders including Liver		258	139	762	303	3069	2087	2285
Human Musculoskeletal Disorders		370	397	364	398	736	829	957
Human Immune Disorders		9921	7013	4959	2675	3580	4498	3683
Human Urogenital/Reproductive Disorders		66	641	647	904	2531	2263	3307
Human Sensory Organ Disorders (skin, eyes and ears)		852	453	336	126	288	351	1002
Human Endocrine/Metabolism Disorders		38379	39259	35968	41811	38420	30462	25424
Other Human Disorders		8969	9058	9168	6537	2641	48	675
Animal Diseases and Disorders		7934	19712	5687	9314	20308	35931	7131
Animal Nutrition		0	0	0	0	0	0	85
Animal Welfare		3222	2522	1568	2246	2175	9085	14249
Diagnosis of diseases		606	778	959	1231	733	870	271
Non-regulatory toxicology and ecotoxicology		141	666	775	502	102	1840	901
Total		121312	150929	120538	113297	124661	142755	114364

ROUTINE PRODUCTION USES

Routine production uses

Purpose	↑↓	2015 ↑↓	2017 ↑↓	2018 ↑↓	2019 ↑↓	2020 ↑↓	2021 ↑↓
Blood based products		21	288	780	685	973	906
Monoclonal and polyclonal antibodies (excluding ascites method)		0	0	0	0	0	2876
Other product types		0	246	0	34	110	111
Total		21	534	780	719	1083	3893

REGULATORY USES

Regulatory uses

Purpose	↑↓	2015 ↑↓	2016 ↑↓	2017 ↑↓	2018 ↑↓	2019 ↑↓	2020 ↑↓	2021 ↑↓
Quality control (incl batch safety and potency testing)		14797	8833	8139	18545	13681	15544	8115
Other efficacy and tolerance testing		95	104	716	611	1373	1082	63
Toxicity and other safety testing including pharmacology		7959	12565	10235	4252	4523	2571	2106
Total		22851	21502	19090	23408	19577	19197	10284

Regulatory uses by type of legislation

Type of legislation	↑↓	2015 ↑↓	2016 ↑↓	2017 ↑↓	2018 ↑↓	2019 ↑↓	2020 ↑↓	2021 ↑↓
Food legislation including food contact material		0	0	0	0	9	0	154
Industrial chemicals legislation		1360	2458	2987	634	844	0	154
Legislation on medicinal products for human use		19568	16970	16069	22506	18640	19197	9972
Legislation on medicinal products for veterinary use and their residues		120	4	0	0	0	0	0
Medical devices legislation		3	0	0	0	24	0	4
Other legislation		1800	2070	34	268	60	0	0
Total		22851	21502	19090	23408	19577	19197	10284

Proportions of regulatory uses by type of legislation

Type of legislation	↑↓	2015 ↑↓	2016 ↑↓	2017 ↑↓	2018 ↑↓	2019 ↑↓	2020 ↑↓	2021 ↑↓
Food legislation including food contact material		0%	0%	0%	0%	0.05%	0%	1.5%
Industrial chemicals legislation		5.95%	11.43%	15.65%	2.71%	4.31%	0%	1.5%
Legislation on medicinal products for human use		85.63%	78.92%	84.17%	96.15%	95.21%	100%	96.97%
Legislation on medicinal products for veterinary use and their residues		0.53%	0.02%	0%	0%	0%	0%	0%
Medical devices legislation		0.01%	0%	0%	0%	0.12%	0%	0.04%
Other legislation		7.88%	9.63%	0.18%	1.14%	0.31%	0%	0%
Total		100%	100%	100%	100%	100%	100%	100%

Regulatory uses by regulatory requirement

Type of requirement	↑↓	2015 ↑↓	2016 ↑↓	2017 ↑↓	2018 ↑↓	2019 ↑↓	2020 ↑↓	2021 ↑↓
Legislation satisfying EU requirements		21051	19368	18990	23408	19573	19163	10197
Legislation satisfying Non-EU requirements only		0	0	0	0	4	34	87
Legislation satisfying national requirements only [within EU]		1800	2134	100	0	0	0	0
Total		22851	21502	19090	23408	19577	19197	10284

Proportions of regulatory uses by regulatory requirement

Type of requirement	↑↓	2015 ↑↓	2016 ↑↓	2017 ↑↓	2018 ↑↓	2019 ↑↓	2020 ↑↓	2021 ↑↓
Legislation satisfying EU requirements		92.12%	90.08%	99.48%	100%	99.98%	99.82%	99.15%
Legislation satisfying Non-EU requirements only		0%	0%	0%	0%	0.02%	0.18%	0.85%
Legislation satisfying national requirements only [within EU]		7.88%	9.92%	0.52%	0%	0%	0%	0%
Total		100%	100%	100%	100%	100%	100%	100%

REGULATORY USES: QUALITY CONTROL (INCLUDING BATCH SAFETY AND POTENCY TESTING)

Regulatory uses: Quality control

Purpose	↑↓	2015 ↑↓	2016 ↑↓	2017 ↑↓	2018 ↑↓	2019 ↑↓	2020 ↑↓	2021 ↑↓
Batch safety testing		3665	3295	2504	3484	2470	2366	2250
Batch potency testing		11105	5486	5601	15061	10272	13137	5193
Other quality controls		27	52	34	0	939	41	672
Total		14797	8833	8139	18545	13681	15544	8115

REGULATORY USES: TOXICITY AND OTHER SAFETY TESTING INCLUDING PHARMACOLOGY

Regulatory uses: Toxicity

Purpose	↑↓	2015 ↑↓	2016 ↑↓	2017 ↑↓	2018 ↑↓	2019 ↑↓	2020 ↑↓	2021 ↑↓
Acute and sub-acute		786	5366	3968	160	120	26	0
Skin irritation/corrosion		12	35	28	16	4	3	0
Skin sensitisation		138	80	177	118	74	32	0
Eye irritation/corrosion		6	0	0	0	0	0	0
Repeated dose toxicity		1747	1700	2205	2289	1608	1615	888
Genotoxicity		0	0	0	0	22	0	44
Reproductive toxicity		0	0	935	480	35	0	0
Developmental toxicity		0	0	0	0	0	6	0
Kinetics		2041	247	796	353	325	155	147
Pharmaco-dynamics (incl safety pharmacology)		9	609	26	675	1034	734	719
Ecotoxicity		3080	4528	2100	154	1292	0	154
Safety testing in food and feed area		0	0	0	0	9	0	154
Target animal safety		120	0	0	0	0	0	0
Other toxicity/safety testing		20	0	0	7	0	0	0
Total		7959	12565	10235	4252	4523	2571	2106

REGULATORY USES : TOXICITY AND OTHER SAFETY TESTING INCLUDING PHARMACOLOGY: ACUTE AND SUB-ACUTE TOXICITY TESTING METHODS

Regulatory uses: Toxicity: Acute and sub-acute

Purpose	↑↓	2015 ↑↓	2016 ↑↓	2017 ↑↓	2018 ↑↓	2019 ↑↓	2020 ↑↓
LD50, LC50		80	5366	3968	0	0	0
Non lethal methods		706	0	0	160	120	26
Total		786	5366	3968	160	120	26

REGULATORY USES: TOXICITY AND OTHER SAFETY TESTING INCLUDING PHARMACOLOGY: REPEATED DOSE TOXICITY

Regulatory uses: Toxicity: Repeated dose

Purpose	↑↓	2015 ↑↓	2016 ↑↓	2017 ↑↓	2018 ↑↓	2019 ↑↓	2020 ↑↓	2021 ↑↓
up to 28 days		1128	861	1382	1171	653	863	791
29 - 90 days		488	229	586	895	651	502	97
> 90 days		131	610	237	223	304	250	0
Total		1747	1700	2205	2289	1608	1615	888

REGULATORY USES: TOXICITY AND OTHER SAFETY TESTING INCLUDING PHARMACOLOGY: ECOTOXICITY

Regulatory uses: Toxicity: Ecotoxicity

Purpose	↑↓	2015 ↑↓	2016 ↑↓	2017 ↑↓	2018 ↑↓	2019 ↑↓	2021 ↑↓
Acute toxicity		0	0	120	154	182	154
Chronic toxicity		3080	3030	1800	0	1110	0
Endocrine activity		0	1440	0	0	0	0
Bioaccumulation		0	58	180	0	0	0
Total		3080	4528	2100	154	1292	154