Real-world evidence with a retrospective cohort of 15,968 COVID-19 hospitalized patients suggests 21 new effective treatments.

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Supplementary Material

Contents

Table S1. Data imported from BPS for each patient: code and definition of the variable.

Code	Meaning
FECNAC	Birth date
FECDEF	Death date
SEXO	Gender
FEC_INGRESO	Hospital admission date
FEC_ALTA	Discharge date
MOTIVO_ALTA	Reason for the discharge: (recovery/death/admission in another hospital/voluntary discharge/retirement home/unspecified)
COD_PATOLOGIA_CRONICA	Hospital codes for chronic conditions
COD_FEC_INI_PATOLOGIA	Date of condition diagnosis
COD_CIE_NORMALIZADO	A mixture of ICD9 and ICD10 codes for diseases
DESC_CIE_NORMALIZADO	Description of the ICD
FECINI_DIAG	Diagnosis date
FECFIN_DIAG	End of the diagnosed condition
FUENTE_DIAG	Source of the diagnosis (hospital, emergency, etc.)
IND_CRONICO_HCUP	Is a chronic disease? (yes/no)
Test COVID: FECHA	Test COVID date
Test COVID: TYPE	PCR / antigens
Test COVID: RESULTADO_TEST	Result of the test (positive/negative)
Pharmacy (Hospital and external): DESCRIPCION	List of drugs used in hospital or purchased in the pharmacies
Pharmacy (Hospital and external): FECHA	Dispensing date
VACUNA	List of vaccines
VACUNAFECHA	Vaccination dates
COD_CLC	List of analytical tests
FEC_EXTRAE	Analytic test date
VALOR	Analytic test value

Table S2. Log Hazard ratios obtained for the drugs tested, along with standard deviations (SDs), upper and lower coefficient intervals (CI), nominal and FDR-adjusted p-values. Also, Lymphocyte proliferation values (see Methods) along with standard deviations (SDs), upper and lower coefficient intervals (CI), nominal and FDR-adjusted p-values. The two last columns indicate the drugs used in the machine learning drug repurposing prediction study and the proteins targeted by the drug. Targets marked with an * were those analyzed in the machine learning drug repurposing.

Drugbank ID	name	N	LHR estimate	LHR SD	LHR CI 5%	LHR CI 95%	LHR p-value	LHR FDR p-value	Lymphocyte counr	LC CI 5%	LC CI 95%	LC p-value	LC FDR p-value	ML prediction	Targets
DB00047	Insulin glargine	565	-0.15163	0.10438	-0.35620	0.05295	0.14631	0.27890	1.10043	-0.00230	0.00816	0.27162	0.41946	No	IGF1R, INSR
DB00115	Cyanocobalamin	400	-0.00558	0.14123	-0.28238	0.27122	0.96850	0.97596	0.07283	-0.00843	0.00903	0.94198	0.94198	No	MMAA, MMACHC, MMUT, MTHFR, MTR, MTRR
DB00126	Ascorbic acid	840	-0.33321	0.10674	-0.54241	-0.12400	0.00180	0.01219	3.66682	0.00406	0.01344	0.00026	0.00127	Yes	P3H1+, P4HTM+, PHYH+, TMLHE+, ALKBH2, ALKBH3, BBOX1, DBH, EGLN1, EGLN2, EGLN3, KDM5D, OGFOD1, OGFOD2, P3H2, P3H3, P4HA1, PAM, PLOD1, PLOD2, PLOD3
DB00128	Aspartic acid	648	-0.29845	0.13140	-0.55598	-0.04091	0.02313	0.06911	3.66511	0.00543	0.01791	0.00027	0.00127	Yes	ASNS+, ACY1, ADSS1, ADSS2, ASPA, ASPH, ASRGL1, ASS1, DARS1, DARS2, GOT1, GOT2, LYZ, PAICS, RNASE1, SLC1A1, SLC25A12, SLC25A13
DB00146	Calcifediol	530	-0.40717	0.15363	-0.70827	-0.10607	0.00804	0.03164	3.40110	0.00502	0.01869	0.00073	0.00328	Yes	VDR+
DB00158	Folic acid	624	-0.01488	0.10223	-0.21525	0.18549	0.88431	0.95713	-0.66950	-0.00805	0.00395	0.50345	0.63980	Yes	FOLR1+, FOLR2, FOLR3
DB00169	Cholecalciferol	725	-0.28067	0.10502	-0.48651	-0.07483	0.00753	0.03062	3.66953	0.00437	0.01440	0.00026	0.00127	Yes	VDR+
DB00177	Valsartan	383	-0.12361	0.12964	-0.37769	0.13047	0.34033	0.51259	1.85808	-0.00034	0.01259	0.06391	0.14444	Yes	AGTR1+
DB00178	Ramipril	509	-0.26557	0.11700	-0.49489	-0.03624	0.02323	0.06911	2.29420	0.00102	0.01294	0.02222	0.06025	No	ACE, BDKRB1
DB00186	Lorazepam	1057	-0.22996	0.08503	-0.39662	-0.06330	0.00684	0.02879	1.16166	-0.00180	0.00705	0.24568	0.39964	No	GABRA1, GABRA2, GABRA3, GABRA4, GABRA5, GABRA6, GABRB1, GABRB2, GABRB3, GABRD, GABRE, GABRG1, GABRG2, GABRG3, GABRP, GABRQ

Drugbank ID	name	N	LHR estimate	LHR SD	LHR CI 5%	LHR CI 95%	LHR p-value	LHR FDR p-value	Lymphocyte counr	LC CI 5%	LC CI 95%	LC p-value	LC FDR p-value	ML prediction	Targets
DB00193	Tramadol	949	-0.16897	0.08313	-0.33191	-0.00604	0.04209	0.11921	3.16350	0.00252	0.01072	0.00162	0.00636	Yes	SLC6A4+, ADORA1, ADRA2A, ADRA2B, ADRA2C, CHRM1, CHRM3, GRIN1, GRIN2A, GRIN2B, GRIN2C, GRIN2D, GRIN3A, GRIN3B, HTR2C, OPRD1, OPRK1, OPRM1, SCN2A, SLC6A2, TACR1, TRPV1
DB00207	Azithromycin	2465	-0.16216	0.05779	-0.27542	-0.04889	0.00502	0.02267	4.36750	0.00338	0.00888	0.00001	0.00018	No	PADI4
DB00213	Pantoprazole	476	0.05155	0.10359	-0.15149	0.25459	0.61874	0.78589	1.70433	-0.00079	0.01131	0.08903	0.18727	No	ATP4A, DDAH1
DB00214	Torasemide	278	0.07079	0.13233	-0.18858	0.33016	0.59267	0.77748	1.21943	-0.00296	0.01270	0.22380	0.37346	No	SLC12A1, SLC12A2
DB00215	Citalopram	300	-0.13647	0.14275	-0.41625	0.14331	0.33907	0.51259	2.85283	0.00363	0.01967	0.00464	0.01666	Yes	HRH1+, SLC6A4+
DB00230	Pregabalin	382	0.04019	0.11379	-0.18284	0.26321	0.72397	0.85752	-0.37733	-0.00766	0.00518	0.70612	0.76659	No	CACNA2D1
DB00275	Olmesartan	413	-0.36562	0.12879	-0.61803	-0.11320	0.00453	0.02209	2.37903	0.00137	0.01416	0.01786	0.05002	Yes	AGTR1+
DB2316	Acetaminophen	7258	-0.27573	0.04035	-0.35481	-0.19665	0.00000	0.00000	6.53570	0.00361	0.00671	0.00000	0.00000	Yes	PTGS2+, PTGES3, PTGS1, TRPV1
DB00318	Codeine	1019	-0.29747	0.09647	-0.48655	-0.10840	0.00204	0.01247	3.92417	0.00441	0.01324	0.00009	0.00073	No	OPRD1, OPRK1, OPRM1
DB00321	Amitriptyline	162	0.00881	0.18668	-0.35708	0.37471	0.96235	0.97596	1.72008	-0.00132	0.01939	0.08746	0.18719	Yes	HRH1+, HTR1B+, NTRK1+, SLC6A4+, ADRA1A, ADRA1B, ADRA1D, ADRA2A, CHRM1, CHRM2, CHRM3, CHRM4, CHRM5, HRH2, HRH4, HTR1A, HTR1D, HTR2A, HTR2C, HTR6, HTR7, KCNA1, KCNH2, KCNH6, KCNH7, KCNQ2, KCNQ3, NTRK2, OPRD1, OPRK1, OPRM1, SIGMAR1, SLC6A2
DB00331	Metformin	1896	-0.35648	0.06733	-0.48845	-0.22451	0.00000	0.00000	3.88744	0.00273	0.00827	0.00010	0.00073	Yes	GPD1+, ETFDH, PRKAB1
DB00332	Ipratropium	1322	-0.04102	0.07479	-0.18760	0.10557	0.58340	0.77364	5.03850	0.00632	0.01436	0.00000	0.00001	No	CHRM1, CHRM2, CHRM3
DB00335	Atenolol	187	-0.31536	0.19350	-0.69460	0.06389	0.10315	0.21696	-0.60431	-0.01264	0.00669	0.54638	0.66658	No	ADRB1, ADRB2
DB00338	Omeprazole	5173	-0.20373	0.04349	-0.28897	-0.11848	0.00000	0.00004	3.92296	0.00189	0.00566	0.00009	0.00073	No	AHR, ATP4A
DB00341	Cetirizine	233	-0.70557	0.22786	-1.15217	-0.25896	0.00196	0.01247	0.99063	-0.00462	0.01405	0.32232	0.45199	Yes	HRH1+

Drugbank ID	name	N	LHR estimate	LHR SD	LHR CI 5%	LHR CI 95%	LHR p-value	LHR FDR p-value	Lymphocyte counr	LC CI 5%	LC CI 95%	LC p-value	LC FDR p-value	ML prediction	Targets
DB00370	Mirtazapine	201	0.05217	0.15216	-0.24605	0.35040	0.73168	0.85831	-0.38123	-0.01043	0.00705	0.70345	0.76659	Yes	HRH1[+], ADRA1A, ADRA1B, ADRA1D, ADRA2A, HTR2A, HTR2C, OPRK1
DB00373	Timolol	254	-0.21656	0.14751	-0.50567	0.07255	0.14207	0.27512	-0.37196	-0.01184	0.00806	0.71004	0.76659	No	ADRB1, ADRB2
DB00381	Amlodipine	1250	-0.27091	0.07289	-0.41378	-0.12804	0.00020	0.00190	1.84840	-0.00020	0.00666	0.06479	0.14444	Yes	CACNA1B[+], CA1, CACNA1C, CACNA1I, CACNA2D3, CACNB1, SMPD1
DB00394	Beclomethasone dipropionate	792	-0.36901	0.11319	-0.59085	-0.14717	0.00111	0.00849	4.15390	0.00594	0.01656	0.00004	0.00045	No	NR3C1
DB00404	Alprazolam	557	-0.00579	0.10444	-0.21049	0.19891	0.95578	0.97596	3.28606	0.00368	0.01455	0.00109	0.00460	Yes	GABRA2[+], GABRA5^{+}, GABRA6^{+}, GABRA1, GABRA3, GABRA4, GABRB1, GABRB2, GABRB3, GABRD, GABRE, GABRG1, GABRG2, GABRG3, GABRP, GABRQ
DB00421	Spironolactone	272	0.12328	0.12368	-0.11914	0.36569	0.31891	0.50226	0.44874	-0.00510	0.00815	0.65401	0.75990	Yes	CACNG1[+], NR1I2[+], AR, CACNA1A, CACNA1B, CACNA1C, CACNA1D, CACNA1E, CACNA1F, CACNA1G, CACNA1H, CACNA1I, CACNA1S, CACNA2D1, CACNA2D2, CACNA2D3, CACNA2D4, CACNB1, CACNB2, CACNB3, CACNB4, CACNG2, CACNG3, CACNG4, CACNG5, CACNG6, CACNG7, CACNG8, CYP11B2, CYP17A1, NR3C1, NR3C2, PGR, SHBG, SRD5A1, SRD5A2, SRD5A3
DB00425	Zolpidem	292	-0.00952	0.13596	-0.27599	0.25694	0.94415	0.97596	1.81929	-0.00058	0.01460	0.07037	0.15332	Yes	GABRA2[+], GABRA1, GABRA3, GABRG2
DB00437	Allopurinol	511	-0.06858	0.10105	-0.26662	0.12947	0.49736	0.70555	-0.61971	-0.00671	0.00349	0.53579	0.66026	No	XDH
DB00440	Trimethoprim	161	-0.10459	0.21128	-0.51870	0.30951	0.62057	0.78589	2.43774	0.00277	0.02537	0.01575	0.04803	No	
DB00448	Lansoprazole	236	-0.18294	0.15103	-0.47895	0.11306	0.22577	0.38255	-0.32776	-0.01012	0.00721	0.74337	0.78862	No	ATP4A, MAPT

Drugbank ID	name	N	LHR estimate	LHR SD	LHR CI 5%	LHR CI 95%	LHR p-value	LHR FDR p-value	Lymphocyte counr	LC CI 5%	LC CI 95%	LC p-value	LC FDR p-value	ML prediction	Targets
DB00451	Levothyroxine	396	-0.22450	0.15086	-0.52017	0.07118	0.13671	0.26902	2.26495	0.00109	0.01517	0.02414	0.06177	Yes	THRB[+], ITGAV, ITGB3, THRA
DB00455	Loratadine	251	-0.36187	0.18521	-0.72487	0.00112	0.05071	0.12890	1.33779	-0.00295	0.01552	0.18172	0.33090	Yes	HRH1[+], KCNH2
DB00502	Haloperidol	206	0.03799	0.14360	-0.24346	0.31945	0.79134	0.91130	1.85439	-0.00042	0.01528	0.06511	0.14444	No	ADRA1A, ADRA2A, ADRA2B, ADRA2C, CHRM3, DRD1, DRD2, DRD3, GRIN2B, HRH1, HTR1A, HTR2A, HTR2C, HTR6, HTR7, MCHR1, SIGMAR1, SLC18A2
DB00503	Ritonavir	199	-2.56715	1.01835	-4.56309	-0.57122	0.01171	0.04328	0.54421	-0.00734	0.01298	0.58700	0.69528	Yes	NR1I2[+]
DB00537	Ciprofloxacin	353	0.22127	0.11505	-0.00423	0.44676	0.05445	0.13286	1.05222	-0.00353	0.01174	0.29339	0.44189	No	KCNH2, TOP2A
DB00584	Enalapril	1598	-0.19957	0.06725	-0.33138	-0.06775	0.00300	0.01745	3.76049	0.00297	0.00945	0.00018	0.00103	No	ACE
DB00590	Doxazosin	428	-0.14507	0.11283	-0.36622	0.07607	0.19853	0.35103	1.09164	-0.00271	0.00953	0.27555	0.42021	No	ADRA1A, ADRA1B, ADRA1D, KCNH2, KCNH6, KCNH7
DB00612	Bisoprolol	1409	0.03952	0.06188	-0.08175	0.16080	0.52296	0.72502	0.45436	-0.00261	0.00419	0.64965	0.75990	No	ADRB1, ADRB2
DB00628	Clorazepic acid	330	-0.03228	0.12859	-0.28432	0.21976	0.80180	0.91421	0.63151	-0.00477	0.00934	0.52815	0.66026	No	GABRA1, GABRA2, GABRA3, GABRA4, GABRA5, GABRA6, GABRB1, GABRB2, GABRB3, GABRD, GABRE, GABRG1, GABRG2, GABRG3, GABRP, GABRQ
DB00630	Alendronic acid	172	-0.08885	0.18170	-0.44496	0.26727	0.62485	0.78589	1.29554	-0.00392	0.01921	0.19684	0.35316	No	ATP6V1A, FDPS, PTPN4, PTPRE, PTPRS
DB00635	Prednisone	1818	-0.35982	0.08332	-0.52311	-0.19652	0.00002	0.00018	5.43363	0.00644	0.01371	0.00000	0.00000	No	NR3C1
DB00641	Simvastatin	1588	-0.40558	0.07026	-0.54328	-0.26789	0.00000	0.00000	5.16632	0.00523	0.01163	0.00000	0.00001	Yes	ITGAL[+], HDAC2, HMGCR
DB00646	Nystatin	165	-0.12519	0.20590	-0.52875	0.27836	0.54317	0.73629	-1.11099	-0.01934	0.00540	0.26787	0.41897	No	
DB00654	Latanoprost	183	0.28492	0.14750	-0.00418	0.57402	0.05341	0.13286	-0.93373	-0.01427	0.00483	0.35214	0.48271	No	PTGFR
DB00656	Trazodone	468	0.17836	0.09654	-0.01086	0.36758	0.06468	0.14985	0.26362	-0.00534	0.00701	0.79221	0.81906	Yes	HRH1[+], SLC6A4[+], ADRA1A, ADRA2A, HTR1A, HTR2A, HTR2C
DB00678	Losartan	1409	-0.10898	0.06648	-0.23928	0.02132	0.10114	0.21648	3.90438	0.00328	0.00991	0.00010	0.00073	Yes	AGTR1[+]
DB00695	Furosemide	1920	0.24131	0.05212	0.13916	0.34346	0.00000	0.00005	-3.74328	-0.00805	-0.00251	0.00019	0.00103	No	CA2, GPR35, SLC12A1

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DB00706	Tamsulosin	1080	0.19252	0.06766	0.05991	0.32513	0.00444	0.02209	0.96661	-0.00185	0.00546	0.33397	0.46300	No	ADRA1A, ADRA1B, ADRA1D
DB00715	Paroxetine	174	-0.02896	0.19600	-0.41311	0.35518	0.88252	0.95713	1.21415	-0.00374	0.01596	0.22631	0.37346	Yes	SLC6A4[+], ADRA1A, ADRA1B, ADRA1D, ADRA2A, ADRA2B, ADRA2C, ADRB1, ADRB2, ADRB3, CHRM1, CHRM2, CHRM3, CHRM4, CHRM5, DRD1, DRD2, DRD5, HRH1, HTR1A, HTR1B, HTR1D, HTR1E, HTR1F, HTR2A, HTR2B, HTR2C, HTR3A, HTR3B, HTR3C, HTR3D, HTR3E, HTR4, HTR6, HTR7, SLC6A2
DB00727	Nitroglycerin	359	0.20588	0.11364	-0.01684	0.42860	0.07002	0.15532	-1.28181	-0.01149	0.00239	0.20108	0.35553	No	NPR1
DB00736	Esomeprazole	277	-0.26589	0.15735	-0.57428	0.04251	0.09106	0.19839	1.55751	-0.00180	0.01576	0.12041	0.24082	No	ATP4A, DDAH1
DB00758	Clopidogrel	285	0.05387	0.12828	-0.19754	0.30529	0.67450	0.81551	-0.39382	-0.00830	0.00552	0.69405	0.76659	No	P2RY12
DB00766	Clavulanic acid	779	0.03666	0.09079	-0.14128	0.21461	0.68635	0.82093	1.03869	-0.00255	0.00831	0.29945	0.44230	No	
DB00788	Naproxen	223	-0.29150	0.21007	-0.70324	0.12023	0.16525	0.30547	3.21950	0.00592	0.02428	0.00154	0.00625	Yes	PTGS2[+], PTGS1
DB00796	Candesartan cilexetil	198	-0.30312	0.19515	-0.68561	0.07938	0.12037	0.24890	2.51961	0.00308	0.02457	0.01261	0.04049	Yes	AGTR1[+]
DB00806	Pentoxifylline	231	-0.01548	0.13760	-0.28517	0.25420	0.91040	0.96582	-0.21323	-0.00883	0.00709	0.83135	0.85231	Yes	NT5E[+], ADORA1, ADORA2A
DB00813	Fentanyl	251	0.16883	0.12628	-0.07868	0.41633	0.18124	0.32517	0.12960	-0.00829	0.00949	0.89698	0.91193	No	ABCB1, OPRD1, OPRK1, OPRM1
DB00828	Fosfomycin	298	-0.12532	0.14617	-0.41181	0.16118	0.39127	0.57512	0.54516	-0.00530	0.00942	0.58622	0.69528	No	
DB00829	Diazepam	641	-0.41669	0.12112	-0.65408	-0.17930	0.00058	0.00473	2.16427	0.00057	0.01141	0.03084	0.07525	Yes	GABRA2[+], GABRA5^{+}, GABRD[+], GABRA1, GABRA3, GABRA4, GABRA6, GABRB1, GABRB2, GABRB3, GABRE, GABRG1, GABRG2, GABRG3, GABRP, GABRQ
DB00927	Famotidine	207	-0.19262	0.16794	-0.52177	0.13653	0.25139	0.40892	0.57316	-0.00725	0.01320	0.56698	0.68487	No	HRH2
DB00938	Salmeterol	279	0.00481	0.13478	-0.25935	0.26897	0.97154	0.97596	1.15088	-0.00355	0.01353	0.25073	0.40250	No	ADRB1, ADRB2, ADRB3
DB00945	Acetylsalicylic acid	2127	-0.19543	0.05548	-0.30416	-0.08670	0.00043	0.00372	1.40216	-0.00080	0.00482	0.16103	0.30695	Yes	CASP1[+], CCND1^{+}, IKBKB[+], MYC[+], NFKBIA[+], PTGS2^{+},

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															RPS6KA3[+], AKR1C1, CASP3, EDNRA, HSPA5, MAPK1, MAPK15, MAPK3, MAPK4, MAPK6, MAPK7, PCNA, PRKAA1, PRKAA2, PRKAB1, PRKAB2, PRKAG1, PRKAG2, PRKAG3, PTGS1, TNFAIP6, TP53
DB00966	Telmisartan	226	-0.09613	0.15655	-0.40296	0.21070	0.53917	0.73629	1.25784	-0.00308	0.01409	0.20987	0.36520	Yes	AGTR1[+], PPARG[+]
DB00973	Ezetimibe	344	-0.16155	0.13076	-0.41783	0.09473	0.21665	0.37227	1.86701	-0.00040	0.01628	0.06262	0.14444	Yes	SOAT1[+], ANPEP, NPC1L1
DB00983	Formoterol	1380	-0.37040	0.08596	-0.53888	-0.20192	0.00002	0.00018	5.13579	0.00650	0.01453	0.00000	0.00001	No	ADRB1, ADRB2, ADRB3
DB00986	Glycopyrronium	196	0.20218	0.14234	-0.07681	0.48116	0.15550	0.29187	0.40028	-0.00780	0.01181	0.68940	0.76659	No	CHRM1, CHRM2, CHRM3
DB00999	Hydrochlorothiazide	2197	-0.35148	0.06036	-0.46979	-0.23318	0.00000	0.00000	3.98046	0.00273	0.00802	0.00007	0.00067	Yes	KCNMA1[+], SLC12A3
DB01001	Salbutamol	670	-0.11964	0.10967	-0.33459	0.09530	0.27528	0.44190	3.90623	0.00567	0.01710	0.00011	0.00073	No	ADRB1, ADRB2, ADRB3
DB01029	Irbesartan	184	-0.49710	0.21193	-0.91248	-0.08171	0.01900	0.06623	0.68108	-0.00656	0.01359	0.49622	0.63725	Yes	AGTR1[+], JUN[+]
DB01039	Fenofibrate	244	-0.53853	0.20520	-0.94072	-0.13635	0.00868	0.03309	1.49896	-0.00196	0.01472	0.13512	0.26589	Yes	NR1I2[+], MMP25, PPARA
DB01050	Ibuprofen	519	-0.65959	0.20808	-1.06743	-0.25175	0.00153	0.01095	2.18280	0.00080	0.01503	0.02961	0.07372	Yes	BCL2[+], CFTR[+], PPARG[+], PTGS2^{+}, FABP2, GP1BA, PPARA, PTGS1, S100A7, THBD
DB01060	Amoxicillin	1090	0.00515	0.07787	-0.14746	0.15777	0.94725	0.97596	1.24767	-0.00151	0.00681	0.21253	0.36520	No	
DB01068	Clonazepam	167	0.07509	0.17917	-0.27608	0.42627	0.67513	0.81551	-0.11898	-0.01232	0.01095	0.90540	0.91288	Yes	NR1I2[+], GABRA1, GABRA2, GABRA3, GABRA4, GABRA5, GABRA6, GABRB1, GABRB2, GABRB3, GABRD, GABRE, GABRG1, GABRG2, GABRG3, GABRP, GABRQ
DB01076	Atorvastatin	1112	-0.08449	0.07355	-0.22864	0.05966	0.25066	0.40892	1.14066	-0.00164	0.00621	0.25429	0.40289	Yes	DPP4[+], AHR, HDAC2, HMGCR, NR1I3
DB01098	Rosuvastatin	314	-0.30099	0.14942	-0.59386	-0.00813	0.04397	0.11921	1.02993	-0.00378	0.01210	0.30385	0.44230	No	HMGCR, ITGAL
DB01104	Sertraline	359	-0.00366	0.12135	-0.24149	0.23418	0.97596	0.97596	2.98406	0.00362	0.01747	0.00303	0.01156	Yes	SLC6A4[+], PGRMC1, SIGMAR1, SLC29A4, SLC6A2, SLC6A3
DB01112	Cefuroxime	352	0.06282	0.13187	-0.19565	0.32129	0.63381	0.78903	1.21146	-0.00280	0.01190	0.22652	0.37346	No	

Drugbank ID	name	N	LHR estimate	LHR SD	LHR CI 5%	LHR CI 95%	LHR p-value	LHR FDR p-value	Lymphocyte counr	LC CI 5%	LC CI 95%	LC p-value	LC FDR p-value	ML prediction	Targets
DB01120	Gliclazide	322	-0.41723	0.15098	-0.71315	-0.12131	0.00572	0.02492	2.74039	0.00257	0.01549	0.00649	0.02262	No	ABCC8, VEGFA
DB01126	Dutasteride	547	0.16492	0.08814	-0.00782	0.33766	0.06132	0.14668	1.42431	-0.00139	0.00878	0.15492	0.30001	Yes	SRD5A1[+], SRD5A2
DB01136	Carvedilol	370	-0.03093	0.11715	-0.26054	0.19868	0.79178	0.91130	-0.99171	-0.00925	0.00303	0.32204	0.45199	Yes	HIF1A[+], ADRA1A, ADRA1B, ADRA1D, ADRA2A, ADRA2B, ADRA2C, ADRB1, ADRB2, GJA1, KCNH2, KCNJ2, KCNJ4, NDUFC2, NPPB, SELE, VCAM1, VEGFA
DB01137	Levofloxacin	1052	0.03795	0.07490	-0.10885	0.18475	0.61239	0.78589	3.76225	0.00391	0.01243	0.00018	0.00103	No	
DB01175	Escitalopram	175	0.20050	0.16727	-0.12734	0.52834	0.23066	0.38549	2.89171	0.00553	0.02885	0.00436	0.01613	Yes	HRH1[+], SLC6A4[+], ADRA1A, ADRA1B, ADRA1D, ADRA2A, ADRA2B, ADRA2C, CHRM1, DRD2, HTR1A, HTR2A, HTR2C, SLC6A2, SLC6A3
DB01184	Domperidone	226	0.13252	0.14828	-0.15811	0.42315	0.37149	0.55270	1.64601	-0.00154	0.01740	0.10098	0.20881	No	DRD2, DRD3
DB01222	Budesonide	1047	-0.25260	0.08800	-0.42508	-0.08012	0.00410	0.02174	3.28003	0.00289	0.01151	0.00108	0.00460	No	ANXA1, NR3C1
DB01225	Enoxaparin	3237	-1.20921	0.10316	-1.41141	-1.00702	0.00000	0.00000	11.31073	0.01233	0.01750	0.00000	0.00000	No	F10, SERPINC1
DB01233	Metoclopramide	498	0.05646	0.12341	-0.18542	0.29835	0.64729	0.79767	2.38020	0.00145	0.01496	0.01767	0.05002	Yes	HTR4[+], CHRM1, DRD2, HTR3A
DB01234	Dexamethasone	2469	-0.75679	0.10273	-0.95813	-0.55545	0.00000	0.00000	9.42789	0.01233	0.01881	0.00000	0.00000	Yes	NR1I2[+], ANXA1, NOS2, NR0B1, NR3C1
DB01261	Sitagliptin	448	-0.36512	0.12515	-0.61040	-0.11984	0.00353	0.01956	2.56016	0.00179	0.01355	0.01077	0.03552	Yes	DPP4[+]
DB01306	Insulin aspart	214	-0.33848	0.18350	-0.69814	0.02117	0.06510	0.14985	2.04618	0.00041	0.01859	0.04196	0.10038	No	IGF1R, INSR
DB01373	Calcium	641	-0.30728	0.10895	-0.52082	-0.09375	0.00480	0.02250	3.75161	0.00479	0.01529	0.00019	0.00103	Yes	ALPP^{+}, CAST^{+}, COMP^{+}, PCDH19^{+}, PDCD6^{+}, S100A8^{+}, S100B^{+}, AOC1, ATP2C1, BMP4, CACNA1C, CALM3, CP, MGP, S100A13, S100A2, S100A9, SPTBN1, TNNC1, TNNC2
DB01409	Tiotropium	449	-0.01915	0.10911	-0.23299	0.19470	0.86068	0.95458	0.43126	-0.00476	0.00746	0.66649	0.76088	No	CHRM1, CHRM2, CHRM3, CHRM4, CHRM5
DB01418	Acenocoumarol	511	0.17844	0.08974	0.00254	0.35433	0.04678	0.12407	-0.74581	-0.00788	0.00353	0.45615	0.59670	No	VKORC1

Drugbank ID	name	N	LHR estimate	LHR SD	LHR CI 5%	LHR CI 95%	LHR p-value	LHR FDR p-value	Lymphocyte counr	LC CI 5%	LC CI 95%	LC p-value	LC FDR p-value	ML prediction	Targets
DB01558	Bromazepam	471	-0.11470	0.11560	-0.34127	0.11188	0.32112	0.50226	2.71790	0.00234	0.01446	0.00682	0.02312	Yes	GABRA2+, GABRA5+, GABRA6+, GABRD+, GABRA1, GABRA3, GABRA4, GABRB1, GABRB2, GABRB3, GABRE, GABRG1, GABRG2, GABRG3, GABRP, GABRQ
DB01592	Iron	959	0.07574	0.07736	-0.07588	0.22736	0.32752	0.50579	-1.34037	-0.00790	0.00148	0.18047	0.33090	Yes	FEN1+, AHSP, CP, EGLN1, FTH1, FXN, HBA1, HDAC8, NEIL1, NEIL2, POLB, TF, TFRC
DB01601	Lopinavir	185	-2.47282	1.01507	-4.46233	-0.48332	0.01485	0.05327	1.00651	-0.00511	0.01591	0.31573	0.45199	No	
DB01611	Hydroxychloroquine	320	-1.17992	0.31635	-1.79995	-0.55988	0.00019	0.00190	-0.28913	-0.00963	0.00729	0.77293	0.81291	Yes	TLR7+, ACE2, TLR9
DB04817	Metamizole	2843	-0.06400	0.05075	-0.16347	0.03546	0.20723	0.36117	4.06537	0.00267	0.00763	0.00005	0.00055	No	PTGS1
DB04876	Vildagliptin	200	-0.13189	0.16107	-0.44757	0.18379	0.41287	0.59965	2.38357	0.00176	0.01809	0.01804	0.05002	Yes	DPP4+
DB06228	Rivaroxaban	200	-0.09436	0.16292	-0.41368	0.22497	0.56249	0.75411	0.77397	-0.00583	0.01340	0.43986	0.58970	No	F10
DB06292	Dapagliflozin	229	-0.35373	0.19329	-0.73256	0.02510	0.06724	0.15191	2.50511	0.00236	0.01940	0.01312	0.04105	No	SLC5A2
DB06605	Apixaban	345	-0.01609	0.11841	-0.24817	0.21599	0.89191	0.95713	0.74036	-0.00432	0.00955	0.45975	0.59670	No	F10
DB06698	Betahistine	409	-0.01532	0.11542	-0.24154	0.21089	0.89437	0.95713	1.38293	-0.00188	0.01093	0.16755	0.31447	Yes	HRH1+, HRH3
DB08810	Cinitapride	210	-0.04103	0.17829	-0.39046	0.30840	0.81799	0.92402	2.41071	0.00217	0.02098	0.01681	0.05002	No	HTR1A, HTR2A, HTR4
DB08882	Linagliptin	306	0.17434	0.11700	-0.05498	0.40366	0.13620	0.26902	-0.43021	-0.00919	0.00588	0.66733	0.76088	Yes	DPP4+
DB08906	Fluticasone furoate	662	-0.20888	0.10361	-0.41196	-0.00580	0.04381	0.11921	4.00962	0.00547	0.01595	0.00007	0.00067	No	NR3C1, NR3C2, PGR
DB09038	Empagliflozin	239	-0.42376	0.18355	-0.78352	-0.06401	0.02096	0.06730	2.26829	0.00126	0.01714	0.02430	0.06177	No	SLC5A2
DB09082	Vilanterol	328	-0.20516	0.14917	-0.49754	0.08722	0.16904	0.30780	2.28033	0.00124	0.01648	0.02336	0.06177	No	ADRB2
DB09153	Sodium chloride	381	-0.29602	0.13845	-0.56739	-0.02466	0.03251	0.09443	0.62571	-0.00479	0.00929	0.53189	0.66026	No	
DB09154	Sodium citrate	272	-0.41841	0.18019	-0.77158	-0.06523	0.02023	0.06703	0.88022	-0.00453	0.01193	0.37952	0.51446	No	
DB09214	Dexketoprofen	327	-0.25471	0.17102	-0.58990	0.08048	0.13639	0.26902	1.02841	-0.00427	0.01369	0.30453	0.44230	Yes	PTGS2+, PTGS1
DB09238	Manidipine	160	-0.13985	0.18858	-0.50945	0.22975	0.45832	0.65782	-0.34343	-0.01189	0.00835	0.73174	0.78309	No	CACNA1A, CACNA1C, CACNA1D, CACNA1F, CACNA1G, CACNA1H, CACNA1I, CACNA1S, CACNB1, CACNB2, CACNB3, CACNB4

Drugbank ID	name	N	LHR estimate	LHR SD	LHR CI 5%	LHR CI 95%	LHR p-value	LHR FDR p-value	Lymphocyte counr	LC CI 5%	LC CI 95%	LC p-value	LC FDR p-value	ML prediction	Targets
DB09341	Dextrose, unspecified form	311	-0.37999	0.16377	-0.70099	-0.05900	0.02033	0.06703	0.75441	-0.00458	0.01031	0.45117	0.59670	No	
DB11921	Deflazacort	629	-0.06549	0.10221	-0.26581	0.13482	0.52164	0.72502	3.82838	0.00522	0.01618	0.00014	0.00092	No	NR3C1
DB13872	Lormetazepam	806	0.15230	0.07786	-0.00029	0.30490	0.05044	0.12890	0.37198	-0.00367	0.00540	0.71001	0.76659	Yes	GABRA2[+], GABRA5^{+}, GABRA1, GABRA3, GABRA4, GABRA6, GABRB1, GABRB2, GABRB3, GABRD, GABRE, GABRG1, GABRG2, GABRG3, GABRP, GABRQ
DB14500	Potassium	352	-0.34762	0.15244	-0.64641	-0.04884	0.02259	0.06911	0.27568	-0.00602	0.00798	0.78296	0.81642	No	ATP1A1
DB14761	Remdesivir	190	-0.03958	0.20608	-0.44348	0.36432	0.84768	0.94878	1.57875	-0.00178	0.01610	0.11603	0.23592	No	