

Supplementary Table S1. Drug-repurposing candidates shared between each skin condition and its TriNetX-observed comorbidities. Candidate comorbidities were derived from DisGeNET disease enrichment of each condition's differentially expressed gene set (Benjamini-Hochberg FDR < 0.05; FDR < 0.25 for VL, for which no association reached FDR < 0.05) and examined for patient co-occurrence in TriNetX. For each comorbidity, its DisGeNET-curated gene set was queried against the LINCS L1000 reference using unsigned gene-set enrichment (Fisher's exact test, $|z| > 2$). Shared candidates are compounds appearing among both the top 100 compounds so identified and the top 100 reversal candidates derived from the skin condition's own transcriptomic signature. TriNetX co-occurrence is the number of patients within the index-condition cohort who also carried the candidate diagnosis, relative to the cohort total; counts are rounded by TriNetX and the smallest reportable non-zero value is ten. Rows are ordered by skin condition, then by number of shared candidates.

Skin condition	TriNetX-observed comorbidity	DisGeNET FDR	TriNetX co-occurrence	% of cohort	Shared candidates (n)	Shared candidate compounds
AD	Liver carcinoma	1.75e-22	20/7610	0.26	25	palbociclib;devazepide;WZ-3146;WZ-4-145;ZK-164015;NNC-05-2090;naproxol;estradiol-benzoate;WZ-4002;TG-101348;NTNCB;BRD-K31706415;mibefradil;tamoxifen;wortmannin;T-98475;thioridazine;BRD-K85211514;amlodipine;SU-11652;BMS-536924;tyrphostin-A9;Y-134;GSK-1070916;etoposide
AD	Dermatitis, Allergic Contact	0.00171	290/7610	3.81	6	aminopurvalanol-a;nobiletin;TG-101348;BRD-K87125912;purvalanol-a;JAK3-inhibitor-I
AD	Influenza	8.98e-12	520/7610	6.83	6	rimcazole;NTNCB;CAM-9-027-3;wortmannin;terfenadine;T-98475
AD	Chronic Obstructive Airway Disease	0.033	1830/7610	24.05	3	tyrphostin-A9;hydrocortisone-valerate;CVF-SUMO-14
AD	Obesity	0.00203	1510/7610	19.84	3	tyrphostin-A9;CAM-9-027-3;JAK3-inhibitor-I
CSU	HIV Infections	4.79e-11	10/510	1.96	11	methotrexate;mycophenolic-acid;BRD-K84959002;CCT-018159;PLX-4720;BRD-K02562327;mycophenolate-mofetil;lovastatin;PP-110;BRD-A24021119;hinokitiol
CSU	Dermatitis, Allergic Contact	1.79e-07	30/510	5.88	8	BIIB-021;aminopurvalanol-a;AZD-7762;TG-101348;KU-0060648;BRD-K87125912;purvalanol-a;AS-605240
CSU	Atherosclerosis	1.62e-05	50/510	9.8	5	BRD-K87125912;tamoxifen;bosutinib;BMS-

						536924;CCT-018159
CSU	Pneumonia	0.000251	80/510	15.69	4	tamoxifen;GSK-1070916;midostaurin;saracatinib
CSU	Infarction, Middle Cerebral Artery	0.000251	20/510	3.92	3	nilotinib;PU-H71;fostamatinib
CSU	Osteoporosis	0.00137	50/510	9.8	2	PI-828;PP-110
HS	Dermatitis, Allergic Contact	3.98e-05	60/3490	1.72	6	anisomycin;TG-101348;BRD-K93367411;alprenolol;riluzole;AS-605240
HS	Spontaneous abortion	2.38e-06	80/3490	2.29	3	fraxetin;homoharringtonine;AS-605240
HS	Multiple Sclerosis	0.00974	50/3490	1.43	2	AS-605240;TG-101348
HS	Pneumonia	0.000643	410/3490	11.75	1	SA-1447005
HS	Rheumatoid Arthritis	3.9e-08	120/3490	3.44	1	aminomethyltransferase
PS	Endometriosis	0.0143	110/10140	1.08	7	BMS-536924;AZD-8055;BRD-K62169556;midostaurin;vemurafenib;wortmannin;NVP-TAE684
PS	Myocardial Ischemia	0.000863	1430/10140	14.1	5	ruxolitinib;T-98475;NU-7441;MK-2206;TPCA-1
PS	Spontaneous abortion	0.0143	40/10140	0.39	5	BMS-536924;KU-0060648;KU-0063794;AS-605240;CCCP
PS	Influenza	2.8e-07	520/10140	5.13	4	BRD-K74623475;sirolimus;wortmannin;T-98475
VL	Amyotrophic Lateral Sclerosis	0.19	10/1180	0.85	3	MPEP;trifluridine;olomoucine
VL	Optic Atrophy	0.177	10/1180	0.85	3	WT-171;BRD-K22052171;BRD-K05978741
VL	Anemia, Diamond-Blackfan	0.136	10/1180	0.85	2	olomoucine;oxyphenonium
VL	Frontotemporal Lobar Degeneration	0.136	40/1180	3.39	1	WT-171

Source data: [signaturesearch/TableS_trinetx_corroborated_drug_candidates.csv](#)