Supplemental Data

Walking the Interactome for Prioritization of Candidate Disease Genes

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Table S2. Enrichment Results with the Network Constructed from all Datasources Excluding Text Mining

Disease	# Genes	RWR	DK	SP	PROSPECTR	DI	Entrez IDs
Monogenic							
Progressive external ophthalmoplegia	4	26.46	27	25.79	1.22	25.57	291, 11232, 5428, 56652
Charcot Marie Tooth Disease	21	17.47	17.99	7.65	4.99	7.32	81846, 79628, 8565, 9927, 23095, 4000, 3315, 10397, 4747, 8898, 2705, 2617, 57716, 1959, 4359, 26353, 9516, 7879, 54332, 1785, 5376
Generalized epilepsy with febrile seizures plus	4	5.44	9.14	1.6	6.23	0.87	2566, 2563, 6323, 6324
Bardet-Biedl Syndrome	13	8.63	8.61	2.55	1.37	0.84	8195, 129880, 22954, 582, 583, 84100, 585, 166379, 79140, 79738, 55212, 27241, 123016
Bare lymphocyte syndrome type II	4	50	50	43.75	1.09	43.75	5993, 5994, 8625, 4261
Refsum disease	5	45	45	36.67	1.14	33.54	5264, 5828, 5189, 5191, 55670
Leigh Syndrome	14	37.91	39.04	28.89	1.63	28.69	374291, 5160, 10128, 6389, 617, 4719, 6834, 4722, 4723, 9997, 1355, 4724, 1352, 4728
Hemophagocytic lymphohistiocytosis	4	32.14	40.63	27.19	1.09	25.42	5873, 8676, 201294, 5551
Leber congenital amaurosis	9	3.84	3.9	1.83	5.09	0.89	145226, 23746, 1406, 3614, 3000, 6121, 80184, 57096, 23418
Cholestasis	3	0.5	0.5	0.5	3.35	0.5	5244, 5205, 8647
Nonbullous congenital ichthyosiform erythroderma	4	1.53	1.89	0.92	2.48	0.87	51099, 7051, 242, 59344

Atypical mycobacteriosis, familial	6	45.83	34.72	12.48	2.23	12.22	3459, 8517, 3593, 6772, 3594, 3460
Ectodermal dysplasia	3	50	50	41.67	1.21	41.67	1896, 10913, 128178
Amyotrophic lateral sclerosis	8	2.51	4.99	1.07	1.88	0.89	4744, 57679, 283, 23064, 6647, 9217, 5630, 1639
Keratosis palmoplantaris striata	3	29.17	25.56	20.83	2.97	19.79	1832, 3848, 1828
Hirschsprung Disease	6	38.06	42.26	34.07	4.09	33.65	5979, 9839, 1889, 1908, 2668, 1910
Polycystic kidney disease	3	33.67	33.65	33.65	11.47	33.64	5314, 5311, 5310
Spastic paraplegia	7	15.22	16.28	14.9	8.2	14.83	23111, 51062, 80208, 51324, 6687, 5354, 6683
Arthrogryposis	4	31.38	37.63	31.38	2.01	25.34	4621, 7136, 7169, 7140
Amyloidosis VI	3	36.67	36.67	34.62	3.83	33.64	9445, 351, 1471
Chondrodysplasia punctata	14	38.43	40.01	32.63	1.75	32.52	5193, 5828, 415, 5192, 2677, 5830, 5189, 8540, 5191, 5190, 8504, 10682, 8443, 55670
Nemaline myopathy	6	31.75	29.17	11.75	3.98	10.3	7169, 58, 7138, 1073, 7170, 4703
Nephronophthisis, hereditary	4	43.75	43.75	43.75	2.45	43.75	27130, 261734, 4867, 27031
Waardenburg syndrome	6	42.59	43.33	38.1	2.6	37.68	6663, 4286, 6591, 1908, 5077, 1910
Fundus albipunctatus	3	33.65	33.63	33.6	4.12	33.6	5961, 6017, 5959
Maple-syrup urine disease	4	50	50	37.5	3.72	37.5	593, 594, 1629, 1738
Brachydactyly	5	22.17	22.99	21.02	2.15	20.55	3239, 8200, 3549, 4920, 658
Amyloidosis, familial visceral	3	35	29.17	33.77	2.01	33.65	4069, 335, 2243
Primary open-angle glaucoma	3	2.99	4.07	1.12	3.33	0.9	10133, 134430, 4653
Congenital myasthenic syndromes	5	45	45	40	6.48	40	1134, 1145, 1144, 5913, 1140
Achromatopsia	3	50	50	50	18.06	50	2780, 54714, 1261
Epidermolysis bullosa	12	47.92	45.83	27.08	10.05	27.08	3914, 3691, 3852, 1294, 1832, 3918, 1308, 3861, 977, 5339, 3909, 3655
Hypertrophic cardiomyopathy	13	34.8	41.13	21.66	2.55	20.92	4607, 70, 859, 7137, 7139, 85366, 51422, 4624, 4625, 7273, 7168, 4633, 4634

Bile-acid synthesis defect, congenital	4	7.12	18.88	2.27	1.73	0.87	80270, 6718, 9420, 23600
Hypercholesterolemia, familial	3	33.76	33.73	33.7	4.43	33.7	338, 255738, 3949
Hypokalemic periodic paralysis	3	2.79	7.81	2.53	1.62	0.73	6329, 10008, 779
Cutis laxa	4	12.44	23.36	6.71	2.3	0.98	2006, 10516, 30008, 538
Fanconi anemia	12	38.02	39.04	33.69	0.95	33.54	2187, 83990, 2189, 2188, 55120, 2177, 2175, 2176, 2178, 79728, 57697, 675
Mitochondrial complex I deficiency disorders	10	45.05	40.05	36.72	1.5	36.72	4722, 374291, 4723, 4720, 4726, 4724, 4728, 4729, 4719, 91942
Holoprosencephaly	6	38.19	39.58	33.59	7.03	33.51	6469, 7050, 6496, 7546, 5727, 2736
Myoclonic dystonia	3	18.8	19.91	1.49	4.52	0.85	8910, 1813, 1861
Adrenoleukodystrophy	5	50	50	45	0.94	45	5192, 5830, 5194, 5189, 55670
Night-blindness, congenital stationary	7	36.18	36.58	32.45	2.03	32.35	6010, 2779, 2916, 60506, 57010, 778, 5158
Long QT Syndrome	10	29.66	30.92	21.33	8.66	20.45	6331, 84920, 775, 9992, 3759, 3784, 3757, 9722, 287, 3753
Primary microcephaly	4	2.37	2.35	1.14	0.98	0.85	55835, 55755, 259266, 79648
Hyper-IgM syndrome	4	26.44	30.95	25.49	2.47	25.44	958, 959, 7374, 57379
Pituitary dwarfism	4	29.02	38.28	26.1	8.07	25.54	8820, 5449, 8022, 5626
Familial hyperinsulinemic hypoglycemia	6	23.26	22.26	8.48	3.34	7.54	3767, 3033, 2645, 2746, 3643, 6833
Bare lymphocyte syndrome type I	3	50	50	16.67	1.43	16.67	6890, 6891, 6892
Hemochromatosis	5	50	50	50	2.3	40.32	30061, 57817, 7036, 3077, 148738
Familial exudative vitreoretinopathy	3	50	50	50	17.68	50	4693, 8322, 4041
Xeroderma pigmentosum	8	44.17	35.94	25.25	1.96	25.1	1643, 2068, 2071, 2073, 2072, 7508, 7507, 5429
Osteopetrosis	5	20.9	20.66	20.52	5.51	20.48	1186, 760, 28962, 4041, 10312
Ehlers Danlos syndrome	9	18.63	23.05	9.66	7.87	7.58	1290, 5351, 1289, 7148, 1278, 1277, 1281, 11285, 9509
Hermansky-Pudlak syndrome	8	41.32	37.15	29.32	1.18	29.28	388552, 8546, 84343,

							89781, 11234, 3257, 79803, 84062
Joubert syndrome	4	2.41	1.69	1.92	1.88	0.89	91147, 4867, 54806, 80184
Multiple epiphyseal dysplasia AD	5	43.33	45	25.29	15.32	20.51	1311, 4148, 1299, 1298, 1297
Stickler syndrome	4	50	50	14.58	3.67	0.92	1280, 1297, 1302, 1301
Kartagener syndrome	3	0.59	0.59	0.59	22.82	0.59	8701, 1767, 27019
Peters anomaly	4	4.3	2.49	4.31	5.27	1.04	5080, 1545, 2296, 5308
Kallmann syndrome	4	2.54	2.85	1	2.24	0.85	3730, 60675, 2260, 128674
Retinitis pigmentosa	20	14.55	16.79	8	6.93	7.51	25794, 6010, 26121, 3614, 6103, 10594, 6102, 6101, 6100, 375298, 7287, 57096, 64218, 4901, 762, 5961, 9129, 24, 6121, 23418
Cataract, autosomal dominant	11	27.64	27.64	25.32	1.63	25.31	1427, 2700, 1409, 2703, 1415, 1414, 4284, 8419, 1421, 5309, 1420
Nonsyndromic hearing loss	41	15.98	16.8	7.62	8.48	7.47	10804, 71, 7466, 64699, 1428, 2070, 1302, 79977, 53904, 9132, 1834, 64072, 4627, 25861, 10083, 51168, 7007, 5172, 65217, 1729, 146183, 375611, 4647, 4646, 117531, 9381, 222662, 11078, 4640, 83715, 5459, 2706, 2707, 153562, 79784, 1687, 23562, 6495, 259236, 161497, 1690
Neuronal ceroid lipofuscinosis	7	1.53	1.32	1.13	10.02	0.91	1509, 1203, 5538, 1200, 1201, 2055, 54982
Severe congenital neutropenia	3	2.25	2.12	1.55	3.95	0.9	2672, 1991, 10456
Arrhythmogenic right ventricular dysplasia (ARVD)	6	30.7	34.44	23.24	2.17	22.53	6262, 5318, 1832, 1829, 1824, 7043
Pulmonary surfactant metabolism dysfunction	3	0.77	0.77	0.77	9.73	0.77	21, 6439, 6440
Elliptocytosis	4	41.67	35.42	35.42	1.82	35.42	6710, 6708, 2035, 6521
Cerebrooculofacioskeletal syndrome	4	43.75	50	43.75	2.53	43.75	2067, 2068, 2073, 2074
Aicardi-Goutieres syndrome	2	0.69	0.69	0.69	1.68	0.69	10535, 79621
Congenital central hypoventilation syndrome	6	33.74	29.47	18.2	4.13	17.22	627, 5979, 429, 8929, 1908, 2668

Parkinson's disease	8	23.45	22.82	19.58	1.2	19.14	6622, 65018, 7345, 120892, 5071, 27429, 11315, 9627
Noonan Syndrome, Costello syndrome, Cardiofaciocutaneous Syndrome	9	39.35	30.33	20.91	7.83	20.83	5781, 5604, 5605, 4436, 6654, 3265, 4763, 3845, 673
Spinocerebellar Ataxia	12	21.74	16.67	9.53	4.65	9.19	6314, 5521, 3748, 773, 25814, 4287, 6908, 5582, 6310, 6311, 6712, 2259
Juvenile myoclonic epilepsy	5	13.96	17.63	4.62	6.08	0.93	785, 2554, 2563, 114327, 1181
Limb-Girdle Muscle Dystrophy	14	34.6	36.27	23.86	5.76	23.53	79147, 9499, 4000, 22954, 8291, 859, 6443, 6442, 6445, 825, 6444, 7273, 8557, 10585
Distal hereditary motor neuronopathy	7	12.82	12.22	6.78	1.8	6.54	26580, 3508, 3315, 26353, 23064, 1639, 2617
Pseudohypoaldosteronism, type I, autosomal recessive	3	50	50	50	1.35	50	6340, 6337, 6338
Microphthalmia	9	14.62	25.03	2.27	3.4	0.92	8724, 6657, 3052, 30062, 54880, 5015, 64220, 338917, 4990
Dilated cardiomyopathy	20	19.48	23.66	11.3	4.82	10.85	5350, 6331, 70, 4607, 7112, 4000, 2070, 7139, 6444, 6901, 1674, 5664, 5663, 10060, 4625, 7273, 8048, 8557, 1756, 11155
Leukoencephalopathy with vanishing white matter	5	50	43.33	30.33	1.02	30.33	8892, 8893, 8890, 8891, 1967
Combined oxidative phosphorylation deficiency	4	39.06	40.63	38.16	1.97	37.7	85476, 7284, 51021, 10102
Cornelia de Lange syndrome	3	50	50	50	5.16	50	8243, 9126, 25836
Spondylocostal dysostosis	3	41.67	50	41.67	2.87	33.6	10683, 3955, 145873
Multiple Acyl-CoA Dehydrogenase deficiency	3	50	50	50	1.31	50	2110, 2109, 2108
Mean Enrichment		**28.31**	**28.96**	**21.84**	**4.33**	**20.82**	
Complex							
Obesity	13	30.79	29.99	15.53	2.31	14.97	51738, 5167, 4160, 348, 5122, 7040, 154, 155, 9607, 3953, 3952, 51141, 5443
Non-Insulin-Dependent Diabetes Mellitus	19	18.76	17.46	8.12	3.93	7.81	3767, 2820, 5167, 6927, 3667, 5770, 6934, 5506, 3990, 6517, 4760, 2053, 6514, 6928, 56729, 3172,

							208, 9479, 11132
Essential hypertension	12	21.45	18.1	11.69	3.46	11.08	118, 6401, 185, 4846, 7133, 1577, 5740, 8490, 1889, 2784, 481, 183
Inflammatory Bowel Disease	7	16.51	16.54	2.48	3.75	1.09	6584, 64127, 5243, 149233, 9231, 1673, 6583
Systemic lupus erythematodes	7	9.62	13.37	2.85	3.82	0.96	26191, 7100, 1493, 5133, 1773, 2212, 7124
Pheochromocytoma	7	25.85	20.69	7.36	10.27	6.28	5979, 4436, 4763, 6392, 6391, 6390, 7428
Rheumatoid arthiritis	7	14.52	18.16	3.77	4.4	0.89	26191, 4795, 3123, 23569, 6583, 861, 4261
Mycobacterium tuberculosis, susceptibility to	6	7.25	14.86	2.63	1.89	0.96	30835, 6556, 6347, 7421, 4153, 3105
Alzheimer Disease	4	50	37.5	37.5	2.22	37.5	5663, 351, 348, 5664
Graves disease	5	6.41	9.7	2.27	3.88	0.84	1493, 57623, 7421, 7038, 2638
Maturity-Onset Diabetes of the Young (MODY)	9	29.09	28.98	19.29	5.46	18.92	2645, 4760, 6928, 6927, 3172, 1056, 3651, 6833, 8462
Age-Related Macular Degeneration	11	20.47	23.53	13.19	8.84	12.7	83872, 84839, 717, 10516, 629, 24, 5654, 2074, 3075, 3078, 10878
Mean Enrichment		***20.89***	***20.74***	***10.56***	***4.52***	***9.5***	
Cancer							
Medulloblastoma	6	34.1	23.64	18.58	1.23	18.4	324, 51684, 1755, 675, 1499, 8643
Hepataocellular carcinoma	3	30.56	6.27	22.73	3.71	22.5	4233, 7157, 1499
Esophageal carcinoma	10	15.47	13.53	7.46	2.11	7.16	50514, 324, 51741, 11178, 6049, 9940, 7048, 1630, 7157, 1029
Juvenile myelomonocytic leukemia	6	25.89	28.45	11.8	12.34	11.54	5781, 4436, 4763, 23092, 3845, 4893
Hereditary nonpolyposis colorectal cancer	7	43.65	43.18	36.05	2.03	35.85	4436, 2956, 7048, 4292, 5378, 5395, 27030
Bladder Cancer	4	39.29	26.91	19.99	5.71	19.25	3265, 5925, 2261, 3845
Glioma of brain, familial	22	24	12.13	6.86	4.11	6.69	9211, 4436, 5468, 4292, 5395, 11200, 5728, 675, 7248, 7249, 1029, 4771,

							1030, 2735, 1956, 29998, 10446, 324, 29997, 4763, 7157, 8089
Prostate cancer	13	9.22	5.42	1.95	3.67	0.97	3732, 60528, 4601, 11200, 5728, 675, 6041, 463, 2048, 8379, 4481, 1316, 999
Pancreatic carcinoma	6	35.21	14.62	23	1.45	22.9	7873, 4089, 3845, 7157, 675, 1029
Lung cancer	5	35.24	12.81	18.85	3.04	18.74	1956, 5002, 3845, 7157, 673
Thyroid carcinoma, papillary	8	7.69	4.99	2.96	6.74	1.17	5979, 5573, 8030, 8031, 4914, 7170, 7175, 51592
Breast cancer familial	15	25.49	20.38	6.23	1.64	6.08	580, 5290, 8202, 11200, 7764, 675, 672, 83990, 5002, 9821, 367, 79728, 7157, 5888, 8493
Mean Enrichment		**27.15**	**17.69**	**14.71**	**3.98**	**14.27**	

“RWR” denotes “random walk with restart.”

“DK” denotes “diffusion kernel.”

“SP” denotes “shortest path.”

“DI” denotes “direct interaciton.”