

Interferon Beta Activity Is Affected by S100B Protein

Alexey S. Kazakov ¹, Alexander D. Sofin ¹, Nadezhda V. Avkhacheva ¹, Evgenia I. Deryusheva ¹, Victoria A. Rastrygina ¹, Maria E. Permyakova ¹, Vladimir N. Uversky ^{2,*}, Eugene A. Permyakov ¹ and Sergei E. Permyakov ^{1,*}

¹ Institute for Biological Instrumentation, Pushchino Scientific Center for Biological Research of the Russian Academy of Sciences, Institutskaya str., 7, Pushchino, Moscow Region 142290, Russia; fenixfly@yandex.ru (A.S.K.); AlSofin@mail.ru (A.D.S.); avkhacheva@gmail.com (N.V.A.); janed1986@ya.ru (); certusfides@gmail.com (V.A.R.); mperm1977@gmail.com (M.E.P.); epermyak@yandex.ru (E.A.P.); permyakov.s@gmail.com (S.E.P.)

² Department of Molecular Medicine and USF Health Byrd Alzheimer's Research Institute, Morsani College of Medicine, University of South Florida, Tampa, FL 33612, USA

* Correspondence: vuversky@usf.edu (V.N.U.); permyakov.s@gmail.com (S.E.P.); Tel.: +7-(495)-143-7741 (S.E.P.); Fax: +7-(4967)-33-05-22 (S.E.P.)

Table S1. List of the human diseases associated with IFN- β and S100B protein, according to DisGeNET database (<http://www.disgenet.org>). PubMed identifiers of the references confirming the protein-disease associations are indicated.

| № | Disease | IFN- β | S100B |
|----|---------------------------------------|--|---|
| 1 | Glioblastoma | 29557060; 27637889; 28098415; 29159280; 28912136; 27194146; 25920530; 26441059; 26397698; 24526161; 23384727; 21805051; 20606645; 19197327; 15455376; 14965379; 1501894; 1998958; 1653364 | 21714070; 18577219 |
| 2 | Cutaneous Melanoma | 29136453 | 21654685; 8225871 |
| 3 | Malignant neoplasm of urinary bladder | 11948141; 2297754 | 17970044 |
| 4 | Secondary malignant neoplasm of liver | 28008721; 21958207; 14977858; 12405292; 11435460 | 29387968; 22011044 |
| 5 | Atrial Fibrillation | 26056004 | 31118294; 31575426 |
| 6 | Lupus Erythematosus, Discoid | 29466691 | 31271591 |
| 7 | Dermatomyositis | 30101523; 27564228; 23018857; 21177291; 21670437; 17968926 | 30157932 |
| 8 | Ischemic stroke | 31810024; 31100209; 30320448; 12973019 | 29384222; 29343763; 28598212 |
| 9 | Colon Carcinoma | 31348591; 29496994; 18035482; 1586975 | 31266264 |
| 10 | Primary malignant neoplasm | 30864696; 30613977; 31167402; 31348591; 30679806; 31036052; 30446226; 29750542; 29158470; 27637889; 29229854; 28214639; 28912136; 28129467; 26597133; 27077807; 26880763; 27496321; 27532609; 24141111; 23403306; 22522623; 22842821; 21226949; 22106296 | 30710273; 31266264; 29345293 |
| 11 | Seizures | 12432978 | 30173303; 17955279 |
| 12 | Schizophrenia | 26133963 | 31786729; 30144068; 30618856; 28435992; 29164477; 29875007; 27863321; 22019077; 22146151; 22146151; 21112154; 21714070; 21070816; 21070816; 20398908; 20398908; 19103440; 20093730; 17982903; 17525977; 17043297; 17062375; |

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| | | | 15670788; 15670788 |
| 13 | Non-Small Cell Lung Carcinoma | 30622322; 26431376; 23658645 | 30455129; 22286962; 19118029 |
| 14 | Glioma | 31638255; 31100209; 26252165; 25175315; 24671169; 24526161; 22938469; 21805051; 19893595; 18220319; 16343929; 14965379; 15546502; 11856487; 10982152; 10395172; 9875676; 1998958 | 30076898; 8750867 |
| 15 | Coronary heart disease | 25882064 | 29183208; 30966831; 28672919 |
| 16 | Memory impairment | 31152860 | 31202867; 30590973; 11222062 |
| 17 | Breast Carcinoma | 31167402; 27207649; 27077807; 26716512; 25884794; 24141111; 18608205; 18608205; 9059994 | 29345293; 20145129 |
| 18 | Brain Neoplasms | 23384727; 21805051; 19197327; 1501894 | 30455129 |
| 19 | Cerebrovascular accident | 30320448; 12973019 | 31387626; 30144068; 31356182; 30229393; 29792379; 29249591; 16960091 |
| 20 | Cone-Rod Dystrophy 2 | 17125797 | 29959890 |
| 21 | Carcinoma of lung | 30622322; 31428903; 30683475; 30446226; 26351076; 25486572; 19893592; 19564073; 2560625 | 21861268 |
| 22 | Septicemia | 30770245; 31500303; 29741098; 30319651; 28533774 | 27436624 |
| 23 | Depressed mood | 28497489; 28245725; 29055445; 28500224 | 30745657; 31100426; 30506371; 31493698; 30278520; 28594820; 19497163; 16797859; 8804639; 8840925 |
| 24 | Sepsis | 30770245; 31500303; 29741098; 30319651; 28533774 | 27436624 |
| 25 | nervous system disorder | 27613121 | 31067852; 29329729 |
| 26 | Neoplasm Metastasis | 31070806; 30213181; 29202279; 28129467; 26716512; 26102027; 20197756; 12405292; 11948141; 11498771; 10029078; 9815626 | 31278360; 29345293; 17264538 |
| 27 | Malignant neoplasm of lung | 30683475; 30622322; 30446226; 26351076; 25486572; 19893592; 19564073; 2560625 | 21861268 |
| 28 | Malignant neoplasm of breast | 31167402; 26716512; 27077807; 25884794; 24141111; 18608205; | 29345293; 20145129 |

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| | | 18608205 | |
| 29 | Polymyositis | 21670437; 17968926 | 30157932 |
| 30 | Neuroblastoma | 27637889; 26887385; 28882441; 26943965; 25920530; 25086905; 18726131; 16115947 | 21714070; 19216736; 9458088; 8733171 |
| 31 | Brain Diseases | 12618863; 8615598 | 31009650; 21112154; 18454941; 18454941; 17705023 |
| 32 | estrogen receptor-negative breast cancer | 8669823 | 29345293 |
| 33 | Status Epilepticus | 28166388 | 29506554; 29680360; 28444637 |
| 34 | Lupus Erythematosus | 29466691 | 31271591 |
| 35 | melanoma | 31356866; 30864696; 30213181; 31070806; 28649738; 27677689; 28624449; 28877249; 29136453; 27399807; 26102027; 26054674; 25728676; 23370279; 23358428; 23018621; 22555508; 21723255; 21846298; 21493591; 18945721; 16505900; 16928243; 16343929; 12096926 | 29135116; 30710305; 29849947; 29345293; 28212812; 27633490; 26659191; 26288839; 24627490; 24490776; 23375094 |
| 36 | Neuromyelitis Optica | 31136907; 28600575; 23434493; 17125797 | 30426010; 19372295 |
| 37 | Tumor Cell Invasion | 29618645; 28317173; 25486572 | 31266264; 28849099; 22286962; 21861268 |
| 38 | Depressive disorder | 28497489; 28500224; 28245725; 29055445 | 30745657; 31100426; 30506371; 31493698; 30278520; 28594820; 19497163; 19497163; 16797859; 16797859; 8804639; 8840925; 8804639; 8840925 |
| 39 | Stomach Carcinoma | 22159640 | 25266115 |
| 40 | Mental Depression | 28497489; 29055445; 28500224; 28245725 | 30745657; 30506371; 31493698; 31100426; 30278520; 28594820; 16797859; 16797859; 8804639; 8840925; 8804639; 8840925 |
| 41 | Impaired cognition | 31233762; 31152860; 29063244; 21208197 | 31683478; 31402961; 29957487; 29523900; 27641367; 27863321; 17579612; 11222062 |
| 42 | Mental deterioration | 21208197 | 17579612 |
| 43 | Forgetful | 31152860 | 30590973; 11222062 |

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| 44 | Adult type dermatomyositis | 30101523; 27564228; 23018857; 21177291; 21670437 | 30157932 |
| 45 | Psoriasis | 27438769 | 29186242; 17719207 |
| 46 | Lupus Vulgaris | 29466691 | 31271591 |
| 47 | Human immunodeficiency virus (HIV) II infection category B1 | 28009639; 10954903; 10446920 | 28852071 |
| 48 | Secondary Neoplasm | 20197756 | 31278360 |
| 49 | Degenerative polyarthritis | 23369825 | 31100426; 30280200 |
| 50 | leukemia | 2295067 | 8677743 |
| 51 | Vitiligo | 28752785 | 28647026; 28212812 |
| 52 | Leukemia, T-Cell | 28768861 | 8381310; 2896028 |
| 53 | Childhood Astrocytoma | 19267105; 8103050; 1906070 | 19147496 |
| 54 | Astrocytoma | 19267105; 15455376; 8174086; 8103050; 1906070 | 19147496; 2186177 |
| 55 | Lupus Erythematosus, Systemic | 31153744; 29466691; 30201809; 28471483; 24561305; 24644022; 22859983; 17968925 | 31271591; 30392117; 30376438; 30282561; 17955279 |
| 56 | Primary malignant neoplasm of lung | 30683475; 30622322; 30446226; 26351076; 25486572; 19893592; 19564073; 2560625 | 21861268 |
| 57 | Malignant Neoplasms | 30864696; 30679806; 31348591; 31036052; 31167402; 30613977; 30446226; 29158470; 29750542; 28214639; 26597133; 29229854; 28912136; 28129467; 27637889; 27532609; 26880763; 27496321; 27077807; 24141111; 23403306; 22522623; 22842821; 22106296; 21226949 | 30732223; 30710281; 31266264; 29345293; 30366122; 29987748; 28051137; 25614008; 19351828; 18705642 |
| 58 | Adult Glioblastoma | 29557060; 28098415; 29159280; 27637889; 27194146; 26441059; 25920530; 24526161; 19197327; 1998958 | 21714070 |
| 59 | Virus Diseases | 31495880; 30275539; 31461630; 31500303; 29979632; 31379819; 31043529; 31594636; 30522781; 31603951; 30930359; 31154625; 30995506; 29559569; 29046453; 30089112; 30333836; 30298349; 30569290; 29611236; 28589097; 29258190; 28573616; 27983470; 29138248 | 29953169 |

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| 60 | VITILIGO-ASSOCIATED MULTIPLE AUTOIMMUNE DISEASE SUSCEPTIBILITY 1 (finding) | 28752785 | 28647026; 28212812 |
| 61 | Diabetes Mellitus, Insulin-Dependent | 16504056 | 31067852; 29484801 |
| 62 | Inflammatory Bowel Diseases | 27220814 | 30144068; 19558426 |
| 63 | Obesity | 29914624; 22951153 | 31363816; 28174179 |
| 64 | Seizures, Focal | 12432978 | 30173303 |
| 65 | Coronary Artery Disease | 25882064 | 30783474 |
| 66 | Glioblastoma Multiforme | 29557060; 29159280; 28912136; 28098415; 27637889; 27194146; 25920530; 26441059; 24526161; 23384727; 20606645; 19197327; 18714312; 14965379; 1653364; 1998958 | 21714070; 18577219 |
| 67 | Multiple Sclerosis | 30610426; 31467033; 31732227; 31606972; 31649263; 31793659; 31522451; 30401571; 30763907; 30684504; 29440323; 30289355; 31209101; 30592627; 30692524; 31589278; 31331574; 31202258; 31517556; 31235738; 30917079; 31565644; 30315270; 31354720; 30594597 | 30368653; 30319357; 19372295; 12355425 |
| 68 | Childhood Neuroblastoma | 26887385; 28882441; 27637889; 26943965; 25920530; 25086905; 18726131 | 21714070; 19216736; 9458088; 8733171 |
| 69 | Amyloidosis | 30222725 | 29259249; 24586351; 19705461; 16709678 |
| 70 | Encephalitis, St. Louis | 31153744 | 30376438 |
| 71 | Meningioma | 27873050 | 17020600; 15492810 |
| 72 | Alzheimer's Disease | 30610591; 31152860; 31233762; 30076830; 30222725; 24262201 | 31683478; 30649628; 30144068; 31217937; 31281238; 29963623; 29681765; 30045751; 28582866; 29386995; 27585561; 20953641; 21080947; 19705461; 19205880; 16797859; 15290893; 15126113; 12505619; 11754997; 11222062; 10617132; 10381557 |

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| 73 | Bacterial Infections | 29190678; 28422568; 28461567 | 28815036 |
| 74 | Adult T-Cell Lymphoma/Leukemia | 28768861 | 8381310 |
| 75 | Central neuroblastoma | 27637889; 26887385; 28882441; 26943965; 25920530; 25086905; 18726131 | 21714070; 19216736; 9458088; 8733171 |
| 76 | Metastatic melanoma | 21235385; 10942517 | 31704599; 29792379; 25586991; 16179868 |
| 77 | Pain | 29394383 | 31824318 |
| 78 | Infection | 19201909; 16984921; 16002711; 15280450; 15163721 | 17624933 |
| 79 | Secondary malignant neoplasm of lymph node | 30672717; 23358428 | 23519055 |
| 80 | Malignant Pleural Mesothelioma | 19715403; 17671130 | 28377727 |
| 81 | Purpura, Thrombotic Thrombocytopenic | 28791286 | 29572925 |
| 82 | Malignant neoplasm of stomach | 22159640 | 25266115 |
| 83 | Childhood Glioblastoma | 29557060; 28098415; 29159280; 27637889; 27194146; 26441059; 25920530; 24526161; 19197327; 1998958 | 21714070 |
| 84 | Neoplasms | 31512776; 31776268; 30683475; 31070806; 31627888; 30848981; 31036052; 30393160; 31358054; 31431457; 30675668; 30679806; 30622322; 29750542; 30012853; 29849115; 28912136; 28337378; 28514874; 27188205; 28578991; 28098415; 28483787; 27399807; 26880763 | 31704599; 29135116; 30076898; 29519923 |
| 85 | Hepatitis | 30594597; 22106296 | 18173564 |
| 86 | Malignant neoplasm of ovary | 11896621 | 31033462; 30558666; 29345293 |
| 87 | Tumor Progression | 31821828; 28849002 | 20587415 |
| 88 | Optic Atrophy | 21987543 | 29959432 |

Table S2. List of the human diseases associated with IFN- β and S100B protein, according to Open Targets Platform database (<https://www.opentargets.org>), and corresponding association scores (<https://docs.targetvalidation.org/getting-started/scoring>). Diseases with association scores for the both proteins exceeding 0.1 are highlighted in yellow.

| № | Disease | IFN- β | S100B |
|----|------------------------------------|--------------|-------|
| 1 | cutaneous melanoma | 0.038 | 0.367 |
| 2 | brain neoplasm | 0.788 | 0.168 |
| 3 | Ischemic stroke | 0.015 | 0.069 |
| 4 | ischemia | 0.053 | 0.089 |
| 5 | infectious meningitis | 0.021 | 0.059 |
| 6 | dilated cardiomyopathy | 0.256 | 0.059 |
| 7 | HIV-1 infection | 0.042 | 0.103 |
| 8 | brain injury | 0.046 | 0.081 |
| 9 | X-linked adrenoleukodystrophy | 0.046 | 0.033 |
| 10 | non-small cell lung carcinoma | 0.646 | 0.076 |
| 11 | colorectal carcinoma | 0.063 | 0.1 |
| 12 | idiopathic pulmonary fibrosis | 0.031 | 0.013 |
| 13 | hyperplasia | 0.05 | 0.027 |
| 14 | HIV infection | 0.058 | 0.107 |
| 15 | esophageal squamous cell carcinoma | 0.04 | 0.017 |
| 16 | colon carcinoma | 0.06 | 0.095 |
| 17 | Chronic mucocutaneous candidosis | 0.021 | 0.015 |
| 18 | amyotrophic lateral sclerosis | 0.036 | 0.16 |
| 19 | ulcer disease | 0.063 | 0.036 |
| 20 | unipolar depression | 0.083 | 0.099 |
| 21 | viral disease | 0.225 | 0.122 |
| 22 | Sleep Disorder | 0.025 | 0.058 |
| 23 | intoxication | 0.01 | 0.074 |
| 24 | Porphyria cutanea tarda | 0.04 | 0.138 |
| 25 | Parkinson's disease | 0.041 | 0.067 |
| 26 | kidney failure | 0.016 | 0.044 |
| 27 | paraneoplastic neurologic syndrome | 0.01 | 0.008 |

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|----|---|-------|-------|
| 28 | Weight loss | 0.022 | 0.02 |
| 29 | colorectal adenocarcinoma | 0.044 | 0.067 |
| 30 | complication | 0.078 | 0.069 |
| 31 | psychosis | 0.013 | 0.17 |
| 32 | pneumonia | 0.049 | 0.017 |
| 33 | influenza | 0.191 | 0.015 |
| 34 | Charcot-Marie-Tooth disease type 1A | 0.198 | 0.022 |
| 35 | wet macular degeneration | 0.046 | 0.01 |
| 36 | adverse effect | 0.077 | 0.013 |
| 37 | arterial occlusion | 0.025 | 0.044 |
| 38 | fibrosis | 0.055 | 0.018 |
| 39 | glioma | 0.788 | 0.168 |
| 40 | neurofibroma | 0.006 | 0.054 |
| 41 | Coma | 0.012 | 0.028 |
| 42 | optic neuritis | 0.044 | 0.012 |
| 43 | stroke | 0.13 | 0.121 |
| 44 | hypertension | 0.076 | 0.144 |
| 45 | invasive breast ductal carcinoma | 0.009 | 0.043 |
| 46 | peripheral neuropathy | 0.346 | 0.19 |
| 47 | asphyxia | 0.004 | 0.04 |
| 48 | multiple sclerosis | 0.119 | 0.064 |
| 49 | small cell lung carcinoma | 0.033 | 0.051 |
| 50 | meningoencephalitis | 0.012 | 0.01 |
| 51 | epilepsy | 0.308 | 0.081 |
| 52 | myositis | 0.076 | 0.032 |
| 53 | melanoma | 0.188 | 0.382 |
| 54 | paraplegia | 0.255 | 0.016 |
| 55 | atherosclerosis | 0.052 | 0.018 |
| 56 | type II hypersensitivity reaction disease | 0.258 | 0.101 |
| 57 | exhaustion | 0.016 | 0.031 |
| 58 | psoriasis vulgaris | 0.011 | 0.015 |

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|----|--|-------|-------|
| 59 | pulmonary arterial hypertension | 0.075 | 0.031 |
| 60 | neuropathic pain | 0.013 | 0.014 |
| 61 | Neurodegeneration | 0.048 | 0.055 |
| 62 | Headache | 0.073 | 0.041 |
| 63 | Proteinuria | 0.065 | 0.037 |
| 64 | memory impairment | 0.022 | 0.03 |
| 65 | amyloidosis | 0.013 | 0.074 |
| 66 | Sepsis | 0.081 | 0.057 |
| 67 | Fever | 0.065 | 0.031 |
| 68 | animal viral hepatitis | 0.019 | 0.026 |
| 69 | Brain atrophy | 0.036 | 0.028 |
| 70 | ischemia reperfusion injury | 0.023 | 0.032 |
| 71 | glioblastoma multiforme | 0.676 | 0.032 |
| 72 | head and neck squamous cell carcinoma | 0.054 | 0.5 |
| 73 | primary progressive multiple sclerosis | 0.056 | 0.045 |
| 74 | skin neoplasm | 0.188 | 0.615 |
| 75 | dizziness | 0.012 | 0.004 |
| 76 | squamous cell carcinoma | 0.056 | 0.505 |
| 77 | mucous membrane pemphigoid | 0.04 | 0.01 |
| 78 | neurodegenerative disease | 0.354 | 0.172 |
| 79 | immunophenotype | 0.03 | 0.019 |
| 80 | asthma | 0.165 | 0.004 |
| 81 | lung disease | 0.649 | 0.1 |
| 82 | insomnia | 0.011 | 0.033 |
| 83 | anaplastic astrocytoma | 0.045 | 0.011 |
| 84 | AIDS dementia | 0.017 | 0.011 |
| 85 | nervous system disease | 0.85 | 0.218 |
| 86 | inflammatory bowel disease | 0.059 | 0.063 |
| 87 | metastatic melanoma | 0.05 | 0.06 |
| 88 | Small for gestational age | 0.01 | 0.028 |
| 89 | hepatocellular carcinoma | 0.112 | 0.01 |

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|-----|---|-------|-------|
| 90 | heart disease | 0.283 | 0.077 |
| 91 | Ascites | 0.051 | 0.011 |
| 92 | mental or behavioural disorder | 0.331 | 0.177 |
| 93 | dysplasia | 0.029 | 0.011 |
| 94 | colon adenocarcinoma | 0.016 | 0.029 |
| 95 | nervousness | 0.066 | 0.064 |
| 96 | Myelitis | 0.017 | 0.011 |
| 97 | myocardial infarction | 0.024 | 0.049 |
| 98 | tropical spastic paraparesis | 0.044 | 0.024 |
| 99 | anxiety disorder | 0.029 | 0.061 |
| 100 | chronic hepatitis C virus infection | 0.079 | 0.013 |
| 101 | allergy | 0.027 | 0.017 |
| 102 | lung cancer | 0.647 | 0.082 |
| 103 | necrosis | 0.064 | 0.019 |
| 104 | severe cutaneous adverse reaction | 0.05 | 0.018 |
| 105 | systemic lupus erythematosus | 0.099 | 0.087 |
| 106 | kidney injury | 0.01 | 0.011 |
| 107 | aspergillosis | 0.013 | 0.035 |
| 108 | obesity | 0.198 | 0.063 |
| 109 | stomach neoplasm | 0.064 | 0.01 |
| 110 | hypoxia | 0.046 | 0.084 |
| 111 | ovarian carcinoma | 0.697 | 0.059 |
| 112 | Alzheimer's disease | 0.044 | 0.067 |
| 113 | urethral intrinsic sphincter deficiency | 0.043 | 0.023 |
| 114 | acute myeloid leukemia | 0.035 | 0.063 |
| 115 | Encephalopathy | 0.024 | 0.04 |
| 116 | cognitive disorder | 0.284 | 0.176 |
| 117 | psoriatic arthritis | 0.036 | 0.017 |
| 118 | nervous system injury | 0.059 | 0.081 |
| 119 | fetal growth restriction | 0.012 | 0.052 |
| 120 | Chronic granulomatous disease | 0.011 | 0.006 |

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|-----|--|-------|-------|
| 121 | head injury | 0.015 | 0.083 |
| 122 | encephalitis | 0.058 | 0.046 |
| 123 | mood disorder | 0.083 | 0.102 |
| 124 | Myasthenia gravis | 0.035 | 0.011 |
| 125 | metastatic neoplasm | 0.05 | 0.06 |
| 126 | Retinoblastoma | 0.069 | 0.016 |
| 127 | infertility | 0.078 | 0.062 |
| 128 | bacterial disease | 0.156 | 0.045 |
| 129 | neuropathy | 0.346 | 0.19 |
| 130 | urinary bladder cancer | 0.048 | 0.01 |
| 131 | asphyxia neonatorum | 0.038 | 0.073 |
| 132 | inflammation | 0.102 | 0.123 |
| 133 | cirrhosis of liver | 0.053 | 0.016 |
| 134 | vascular disease | 0.234 | 0.158 |
| 135 | migraine without aura | 0.018 | 0.039 |
| 136 | type I diabetes mellitus | 0.048 | 0.039 |
| 137 | peritonitis | 0.038 | 0.011 |
| 138 | renal cell adenocarcinoma | 0.078 | 0.017 |
| 139 | cerebellar ataxia | 0.253 | 0.063 |
| 140 | heart failure | 0.015 | 0.047 |
| 141 | congenital heart disease | 0.013 | 0.049 |
| 142 | experimental autoimmune encephalomyelitis | 0.113 | 0.015 |
| 143 | attention deficit hyperactivity disorder | 0.01 | 0.058 |
| 144 | type IV hypersensitivity disease | 0.235 | 0.025 |
| 145 | liver disease | 0.115 | 0.159 |
| 146 | chronic hepatitis | 0.046 | 0.012 |
| 147 | adenocarcinoma | 0.778 | 0.048 |
| 148 | edema | 0.015 | 0.026 |
| 149 | schizophrenia | 0.01 | 0.168 |
| 150 | Hyperglycemia | 0.012 | 0.017 |

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|-----|---|-------|-------|
| 151 | infectious disease | 0.335 | 0.124 |
| 152 | migraine disorder | 0.052 | 0.062 |
| 153 | Myelopathy | 0.015 | 0.024 |
| 154 | relapsing-remitting multiple sclerosis | 0.11 | 0.031 |
| 155 | breast cancer | 0.725 | 0.029 |
| 156 | Hypothermia | 0.046 | 0.079 |
| 157 | hemorrhage | 0.075 | 0.076 |
| 158 | viral encephalitis | 0.056 | 0.044 |
| 159 | Abnormality of mitochondrial metabolism | 0.011 | 0.018 |
| 160 | cerebral artery occlusion | 0.024 | 0.044 |
| 161 | cancer | 0.838 | 0.619 |
| 162 | celiac disease | 0.011 | 0.053 |
| 163 | neoplasm | 0.85 | 0.633 |
| 164 | Spinal cord injury | 0.052 | 0.043 |
| 165 | diabetes mellitus | 0.05 | 0.09 |
| 166 | osteosarcoma | 0.044 | 0.01 |
| 167 | vasculitis | 0.043 | 0.014 |
| 168 | Fanconi anemia complementation group E | 0.014 | 0.026 |
| 169 | Herpetic encephalitis | 0.015 | 0.017 |
| 170 | neuromyelitis optica | 0.051 | 0.028 |
| 171 | medulloblastoma | 0.042 | 0.071 |
| 172 | Gliosis | 0.017 | 0.078 |
| 173 | neuroblastoma | 0.082 | 0.047 |
| 174 | septic shock | 0.05 | 0.03 |
| 175 | pulmonary edema | 0.011 | 0.016 |
| 176 | psychotic symptoms | 0.01 | 0.039 |
| 177 | colitis | 0.058 | 0.054 |
| 178 | transient ischemic attack | 0.013 | 0.021 |
| 179 | Sarcoidosis | 0.079 | 0.02 |
| 180 | hepatitis C virus infection | 0.079 | 0.029 |
| 181 | brain edema | 0.019 | 0.06 |

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|-----|--------------------------------|-------|-------|
| 182 | chronic kidney disease | 0.004 | 0.037 |
| 183 | Uveal Melanoma | 0.037 | 0.033 |
| 184 | Ataxia-telangiectasia | 0.031 | 0.05 |
| 185 | Cognitive impairment | 0.025 | 0.062 |
| 186 | Vitiligo | 0.017 | 0.077 |
| 187 | osteoarthritis | 0.04 | 0.043 |
| 188 | injury | 0.116 | 0.144 |
| 189 | central nervous system disease | 0.85 | 0.214 |
| 190 | Nausea | 0.01 | 0.013 |
| 191 | Frontotemporal dementia | 0.011 | 0.011 |
| 192 | Meningioma | 0.041 | 0.044 |
| 193 | respiratory failure | 0.067 | 0.018 |
| 194 | Tuberous sclerosis | 0.029 | 0.011 |
| 195 | encephalomyelitis | 0.228 | 0.064 |
| 196 | Growth delay | 0.021 | 0.026 |
| 197 | Potassium-aggravated myotonia | 0.044 | 0.018 |
| 198 | brain infarction | 0.041 | 0.067 |
| 199 | Shock | 0.044 | 0.05 |
| 200 | Peripheral demyelination | 0.058 | 0.027 |
| 201 | grade III glioma | 0.03 | 0.01 |
| 202 | substance dependence | 0.062 | 0.06 |
| 203 | Guillain-Barre syndrome | 0.052 | 0.041 |
| 204 | psoriasis | 0.056 | 0.048 |
| 205 | cerebral infarction | 0.04 | 0.067 |
| 206 | nicotine dependence | 0.06 | 0.018 |
| 207 | Mental deterioration | 0.015 | 0.034 |
| 208 | Seizure | 0.021 | 0.082 |
| 209 | ulcerative colitis | 0.05 | 0.055 |
| 210 | osteonecrosis | 0.048 | 0.054 |
| 211 | diarrheal disease | 0.035 | 0.014 |
| 212 | toxic encephalopathy | 0.024 | 0.063 |

| | | | |
|-----|--|-------|-------|
| 213 | delirium | 0.01 | 0.147 |
| 214 | breast carcinoma | 0.709 | 0.062 |
| 215 | pain | 0.06 | 0.064 |
| 216 | keratitis | 0.048 | 0.014 |
| 217 | chronic obstructive pulmonary disease | 0.066 | 0.08 |
| 218 | astrocytoma | 0.676 | 0.036 |
| 219 | cardiac hypertrophy | 0.011 | 0.019 |
| 220 | Paroxysmal exertion-induced dyskinesia | 0.012 | 0.008 |
| 221 | dementia (disease) | 0.284 | 0.074 |
| 222 | Duchenne muscular dystrophy | 0.033 | 0.013 |
| 223 | non-small cell lung adenocarcinoma | 0.02 | 0.038 |
| 224 | polyneuropathy | 0.049 | 0.013 |
| 225 | subarachnoid hemorrhage | 0.034 | 0.066 |

Figure S1. Multiple sequence alignment of human S100B, S100A1, S100A4, S100A6, and S100P proteins by Clustal Omega.

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sp|P25815|S100P_HUMAN      -MTELETAMGMIIDVFSRYSGSEGSTQTLTKGELKVLMEKELPGFLQSGKDKDAVDKLLK      59
sp|P23297|S10A1_HUMAN      MGSELETAMETLINVFHAHSGKEGDKYKLSKKELKELLQTELSGFLDAQKDVAVDKVMK      60
sp|P26447|S10A4_HUMAN      MACPLEKALDVMVSTFHKYSGKEGDKFKLNKSELKELLTRELPSFLGKRTDEAAFQKLMS      60
sp|P06703|S10A6_HUMAN      MACPLDQAIGLLVAIFHKYSGREGDKHTLSKKELKELIQKELT--IGSKLQDAEIA RLME      58
sp|P04271|S100B_HUMAN      -MSELEKAMVALIDVFHQYSGREGDKHKLKKSELKELINNELSHFLEEIKEQEVDKVME      59
                               *: *:  ::  *  : ** **.. *. *  *** *:  **  :  :  .  :::.

sp|P25815|S100P_HUMAN      DLDANGDAQVDFSEFIVFVA AITSACHKYFEKAGLK-----          95
sp|P23297|S10A1_HUMAN      ELDENG DGEVDFQEYVVLVAALTVACNNFFWENS-----          94
sp|P26447|S10A4_HUMAN      NLDSNRDNEVDFQEYCVFLSCIAMMCNEFFEGFPDKQPRKK          101
sp|P06703|S10A6_HUMAN      DLDRNKDQEVNFQEYVTF LGALALIYNEALKG-----          90
sp|P04271|S100B_HUMAN      TLDNDGDGECDFQEFMAFVAMVTTACHEFFEHE-----          92
                               ** : * : :*. *: .::: ::  :: :

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Percent Identity Matrix - created by Clustal2.1

| | | | | | | |
|----|-----------------------|--------|--------|--------|--------|--------|
| 1: | sp P25815 S100P_HUMAN | 100.00 | 52.69 | 41.05 | 34.83 | 50.00 |
| 2: | sp P23297 S10A1_HUMAN | 52.69 | 100.00 | 48.94 | 43.33 | 57.61 |
| 3: | sp P26447 S10A4_HUMAN | 41.05 | 48.94 | 100.00 | 51.11 | 45.65 |
| 4: | sp P06703 S10A6_HUMAN | 34.83 | 43.33 | 51.11 | 100.00 | 39.33 |
| 5: | sp P04271 S100B_HUMAN | 50.00 | 57.61 | 45.65 | 39.33 | 100.00 |