

Study on the differential proteins in plasma of the BPD sensitive to dexamethasone therapy

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Abstract

Abstract Objective To find some plasma differential proteins in Bronchopulmonary dysplasia(BPD) sensitive to dexamethasone therapy.**Methods** 30 cases of BPD from NICU of the affiliated Huaian first people's hospital of Nanjing Medical University were selected,the plasma samples were collected before a 10-day course dexamethasone therapy for all objects,and the therapeutic effect was judged sooner after the therapy finished.The infants who showed significant therapeutic effect were collected the plasma samples again.Then,3 infants were picked at random from the dexamethasone sensitive infants ,whose plasma samples before and after dexamethasone therapy were analyzed by DIA,and the differential proteins were found and analyzed by bioinformatics.Results 10 of 30 cases were sensitive to dexamethasone.There are 23 differential proteins between two groups(before and after dexamethasone administration) in total, from which, 27 proteins are downregulated,while 6 upregulated. Bioinformatics analysis showed that differential proteins may involve multiple genes and signal pathways..When combined with literature retrieval,both low-density lipoprotein receptor-related protein 1(LRP1) and S100A8 might be considered as potential targets for dexamethasone intervention of BPD.**Conclusion** We found the differential proteins related to the sensitivity to glucocorticoids for BPD, which will provide the direction for the choice of glucocorticoids in the treatment of BPD .

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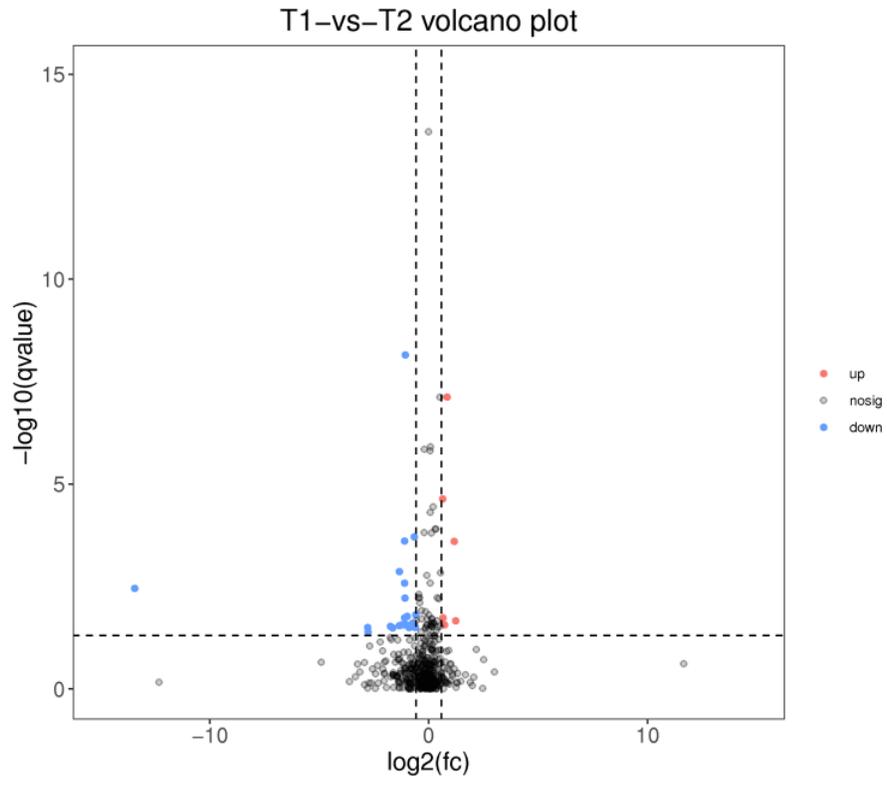
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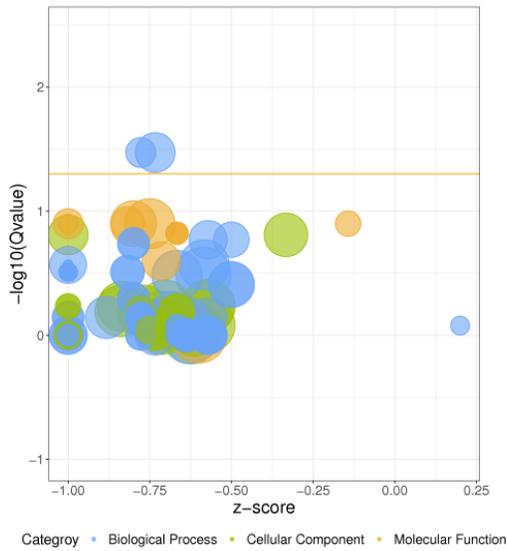
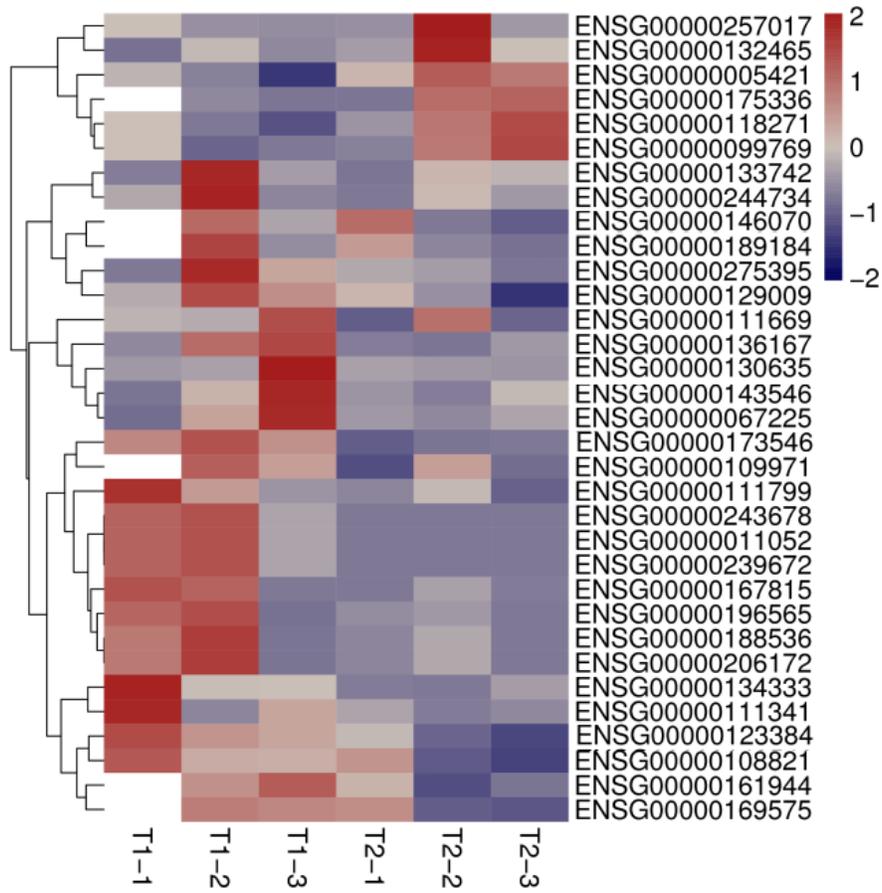
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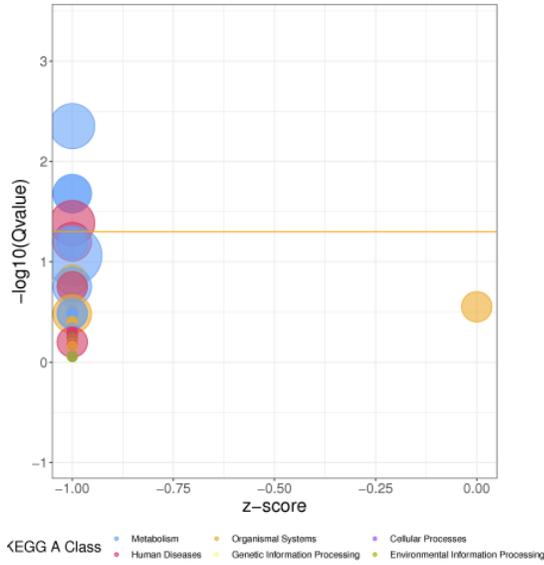
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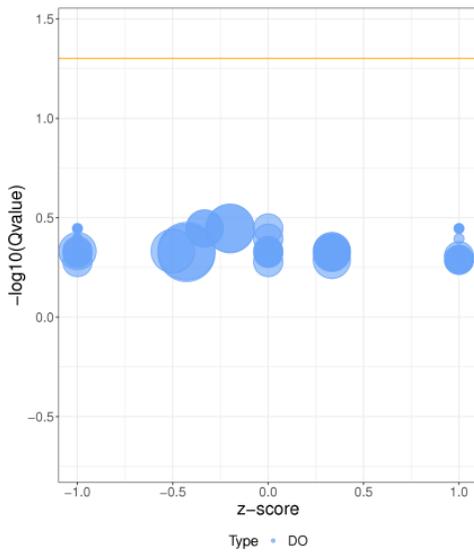
GO term Top 20

ID	Description
GO:0009056	catabolic process
GO:0051186	cofactor metabolic process
GO:0044710	single-organism metabolic process
GO:0044281	small molecule metabolic process
GO:0043933	macromolecular complex subunit organization
GO:0065003	macromolecular complex assembly
GO:0051179	localization
GO:0009058	biosynthetic process
GO:0032991	macromolecular complex
GO:0005829	cytosol
GO:0005488	binding
GO:0043167	ion binding
GO:0005515	protein binding
GO:0019899	enzyme binding
GO:0008289	lipid binding
GO:0016491	oxidoreductase activity
GO:0003676	nucleic acid binding
GO:0097159	organic cyclic compound binding
GO:1901363	heterocyclic compound binding
GO:0003824	catalytic activity



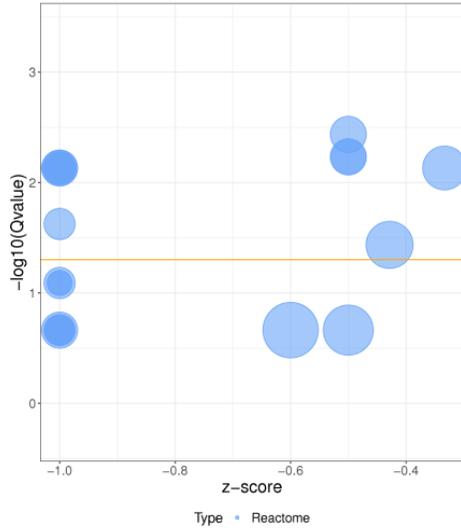
Pathway Top 20

ID	Description
ko00230	Purine metabolism
ko00240	Pyrimidine metabolism
ko00983	Drug metabolism – other enzymes
ko00620	Pyruvate metabolism
ko01100	Metabolic pathways
ko00010	Glycolysis / Gluconeogenesis
ko00270	Cysteine and methionine metabolism
ko00640	Propanoate metabolism
ko01230	Biosynthesis of amino acids
ko00051	Fructose and mannose metabolism
ko00565	Ether lipid metabolism
ko05144	Malaria
ko05143	African trypanosomiasis
ko05230	Central carbon metabolism in cancer
ko04930	Type II diabetes mellitus
ko05162	Measles
ko04922	Glucagon signaling pathway
ko04918	Thyroid hormone synthesis
ko04974	Protein digestion and absorption
ko03040	Spliceosome



DO term Top 20

ID	Description
DOID:1561	cognitive disorder
DOID:2468	psychotic disorder
DOID:5419	schizophrenia
DOID:6432	pulmonary hypertension
DOID:150	disease of mental health
DOID:12169	carpal tunnel syndrome
DOID:12978	Plasmodium vivax malaria
DOID:13042	persistent fetal circulation syndrome
DOID:1751	malignant conjunctiva melanoma
DOID:1827	idiopathic generalized epilepsy
DOID:2224	hemorrhagic thrombocytopenia
DOID:5467	conjunctival cancer
DOID:573	nerve compression syndrome
DOID:6367	acral lentiginous melanoma
DOID:750	peptic ulcer disease
DOID:8923	skin melanoma
DOID:6000	congestive heart failure
DOID:0050622	reproductive organ benign neoplasm
DOID:0060086	female reproductive organ benign neoplasm
DOID:0060095	uterine benign neoplasm



Reactome Top 20

ID	Description
R-HSA-2168885	Haptoglobin binds Hemoglobin
R-HSA-2168883	Haptoglobin:Hemoglobin binds CD163
R-HSA-2230938	Hemoglobin:Haptoglobin:CD163 is endocytosed
R-HSA-1237044	Erythrocytes take up carbon dioxide and release oxygen
R-HSA-1247673	Erythrocytes take up oxygen and release carbon dioxide
R-HSA-1480956	O ₂ /CO ₂ exchange in erythrocytes
R-HSA-1237325	Hemoglobin A is protonated and carbamated causing release of oxygen
R-HSA-1247668	Hemoglobin A binds oxygen and releases protons and carbon dioxide
R-HSA-6896831	CYB5Rs reduce Methb to HbA
R-HSA-2168880	Scavenging of heme from plasma
R-HSA-2168884	Ferriheme is transferred from Methemoglobin to Hemopexin
R-HSA-2173782	Binding and Uptake of Ligands by Scavenger Receptors
R-HSA-2168889	Haptoglobin-related Protein binds Hemoglobin
R-HSA-482619	(d)NDP + ATP ↔ (d)NTP + ADP (NME1.2.3)
R-HSA-482621	(d)NTP + ADP ↔ (d)NDP + ATP (NME1.2.3)
R-HSA-499943	Interconversion of nucleoside di- and triphosphates
R-HSA-5653656	Vesicle-mediated transport
R-HSA-1008220	Expression of globin genes under control of the beta globin control region
R-HSA-2213205	Type XII and XIV collagens associate with type I and type II fibrils
R-HSA-1430728	Metabolism