




December 2021

geneXplain® platform 6.5 release

Database updates:

-  HumanPSD™ is updated to version 2021.3 (December 2021).
-  TRANSFAC® is updated to version 2021.3 (December 2021).
-  TRANSPATH® is updated to version 2021.3 (December 2021).

New:



-  The platform supports now the new Ensembl *Mus musculus* genome assembly GRCm39 (mm39). An example can be seen [here](#).
-  Human Protein Atlas data is now incorporated into the platform to allow queries for [tissue specific expression values of genes](#). We are supporting 61 different tissues. The output gene lists can be further filtered for 14 different [specified protein functions](#) and contain the corresponding annotation information.

Table1: Overview of 61 supported tissues from Protein Atlas to gain expression values.

adipose tissue	endometrium	olfactory region	spinal cord
adrenal gland	epididymis	ovary	spleen
amygdala	esophagus	pancreas	stomach
appendix	fallopian tube	parathyroid gland	T cells
B cells	gallbladder	pituitary gland	testis
basal ganglia	granulocytes	placenta	thalamus
bone marrow	heart muscle	pons and medulla	thymus
breast	hippocampal formation	prostate	thyroid gland
cerebellum	hypothalamus	rectum	tongue
cerebral cortex	kidney	retina	tonsil
cervix uterine	liver	salivary gland	total PBMC
colon	lung	seminal vesicle	urinary bladder
corpus callosum	lymph node	skeletal muscle	vagina
dendritic cells	midbrain	skin	
ductus deferens	monocytes	small intestine	
duodenum	NK cells	smooth muscle	

Table2: List of protein functions for filtering expression values

transcription factors	proto-oncogene
ligands	adaptor proteins
hormones	inhibitors
cytokines	protein kinases
membrane transducing components	chemokines
receptors	co-factors
G proteins	extracellular matrix proteins

Table3: Example output table with genes expressed in liver and know to be transcription factors.

ID	Gene description	Gene symbol	Classifications	Relative t.sp.	liver
ENSG00000169136	activating transcription factor 5	ATF5	transcription_factors; ATF-5.	0.53786	459.19508
ENSG00000060566	cAMP responsive element binding protein 3 like 3	CREB3L3	transcription_factors; CREB-H.	0.67226	172.88033
ENSG00000012504	nuclear receptor subfamily 1 group H member 4	NR1H4	transcription_factors; FXR.	0.53267	105.8623
ENSG00000009950	MLX interacting protein like	MLXIPL	transcription_factors; ChREBP.	0.27336	96.77705
ENSG00000143257	nuclear receptor subfamily 1 group I member 3	NR1I3	transcription_factors; CAR (NR1I3).	0.70842	61.78197
ENSG00000169856	one cut homeobox 1	ONECUT1	transcription_factors; HNF-6.	0.62957	57.27377
ENSG00000101076	hepatocyte nuclear factor 4 alpha	HNF4A	transcription_factors; HNF-4alpha (NR2A1).	0.42188	51.85246
ENSG00000131910	nuclear receptor subfamily 0 group B member 2	NROB2	transcription_factors; SHP (NROB2).	0.42431	44.91967
ENSG00000169083	androgen receptor	AR	transcription_factors; AR (NR3C4).	0.21137	42.66557
ENSG00000116833	nuclear receptor subfamily 5 group A member 2	NR5A2	transcription_factors; LRH-1.	0.41784	31.65574

Platform API:



Platform APIs ([genexplain-api](#) and [geneXplainR](#)) were updated to provide all method parameters including expert options. [JSON templates](#) cover all platform as well as the integrated Galaxy tools of edition 6.5.

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API user object

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HTTP client object
 - basic set of methods to control platform processes and use platform workspace (getTable, putTable, analyze, imPort, export)

HTTP connection object
 - maintains HTTP connection (login data, auth. token, SSL)
 - low-level request methods (queryBioUML, queryJSON)
 - ping, login, logout, reconnect

GeneXplain platform server

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Update JSON templates

galaxy

Update JSON templates

platform_tools

Update JSON templates

Contents of the json folder

This folder contains prepared JSON configuration files presenting either runnable examples or templates that follow the goal of providing reusable workflow components.

Files in the *methods* folder are named according to corresponding tool sections in the platform.