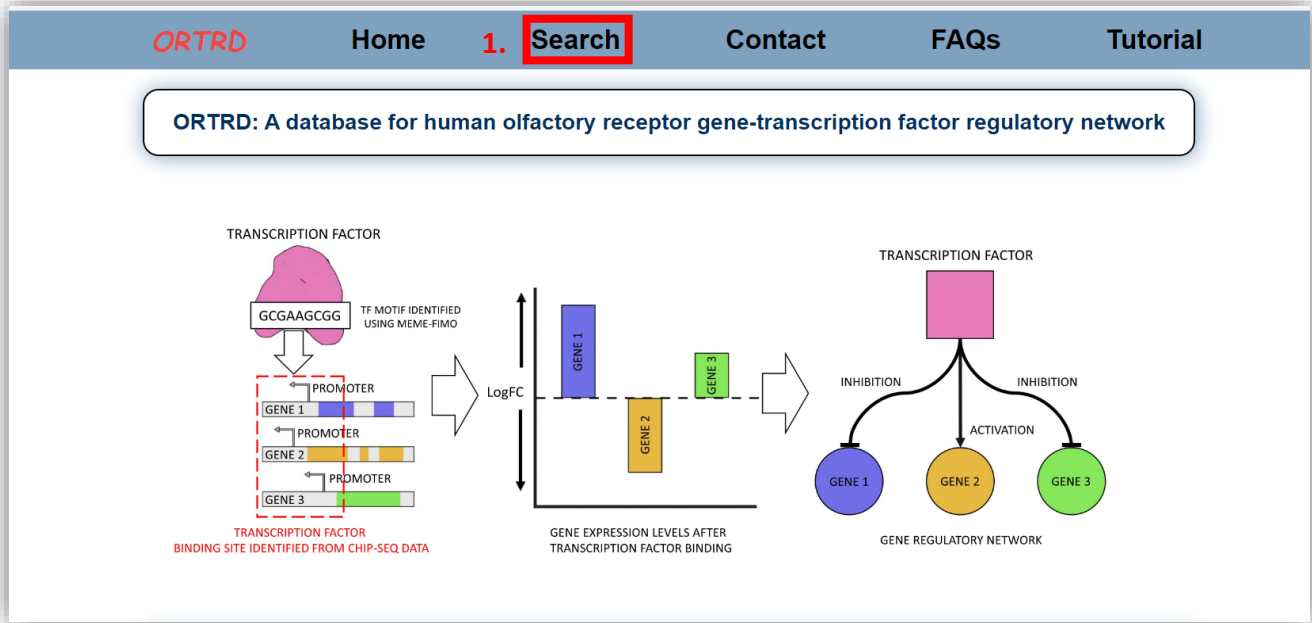


ORTRD Search Tutorial

1.1 Search

Open the Home page and click on the **Search¹** button in the header.



ORTRD supports two different searching modes: “Search by Gene Symbol”, “Search by Transcription factor symbol. Brief search results are presented as a table in the browse page. As an example, the **search box²** can be used to query gene symbols or transcription factors. Enter one single search term, select either **Gene symbol³** or **Transcription factor symbol⁴**, and click on **Submit⁵**.

ORTRD is a repository of manually annotated causal relationships between human olfactory receptor genes and its transcription factors. The search field below allows users to access the entity page detailing all the causal relationships annotated to the query entity. ORTRD also offers advanced network visualization analysis to explore the human olfactory receptors.

Search Here

2

Format : "OR1A1" with gene symbol or "ASCL1" with transcription factor parameter

3 Gene symbol

4 Transcription factor symbol

5

1.2 Browse

Browse page on the next page are presented as cards which includes Accession ID, Gene Symbol, Gene Name, TF Symbol and TF Name. The “Browse” page is organized as an interactive cards for quickly searching datasets of interest. Users can click the **accession⁶** of the data summary of interest to get the complete information. For example, Accession ID: ORTRD00191

The screenshot shows the ORTRD search results page. At the top, there is a navigation bar with links for Home, Search, Contact, FAQs, and Tutorial. Below the navigation bar, a message states "30-Results were found!". The results are displayed as a list of five cards, each representing a different Accession ID for the gene OR1A1. The first card is highlighted with a red box around the Accession ID "ORTRD00191" and a red "6" next to it. The other cards show Accession IDs ORTRD00215, ORTRD00387, ORTRD00841, and ORTRD01382. Each card displays the Gene Symbol (OR1A1), Gene Name (Olfactory receptor family 1 subfamily a member 1), TF Symbol, and TF Name.

Accession ID	Gene Symbol	Gene Name	TF Symbol	TF Name
ORTRD00191 6	OR1A1	Olfactory receptor family 1 subfamily a member 1	BRCA1	Brca1 dna repair associated(brca1)
ORTRD00215	OR1A1	Olfactory receptor family 1 subfamily a member 1	CEBPD	Ccaat enhancer binding protein delta(cebpd)
ORTRD00387	OR1A1	Olfactory receptor family 1 subfamily a member 1	EBF1	Ebf transcription factor 1(ebf1)
ORTRD00841	OR1A1	Olfactory receptor family 1 subfamily a member 1	FOXM1	Forkhead box m1(foxm1)
ORTRD01382	OR1A1	Olfactory receptor family 1 subfamily a member 1	JUN	Jun proto-oncogene, ap-1 transcription factor subunit(jun)

1.3 Result

Finally, the page will be redirected to the result page with all the information related to **gene, transcription factor, motif, and gene regulatory network information**. Example: Gene = **OR1A1**, Transcription factor = **BRCA1**

For example, after clicking on Accession ID ORTRD00191, the search result page presents Gene information (OR1A1), Transcription Factor Information (BRCA1), Transcription factor motif information, Gene regulation (Repression) and Gene Regulatory Network (GRN) associated with OR1A1 gene.

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ORTRD00191 Download

Gene Information

Gene symbol : OR1A1
 Gene full name : Olfactory receptor family 1 subfamily a member 1
 NCBI ID : 8383
 Gene transcript ID : ENST00000641732.2

Transcription Factor Information

TF symbol : BRCA1
 TF full name : Brca1 dna repair associated(brca1)
 Uniprot ID : P38398
 TF Length : 1,863 AA

TFs associated with OR1A1:
 BRCA1; CEBPD; EBF1; FOXM1; JUN; JUND; NFKB1; REST; STAT3; ASCL1;
 ATF3; ATF4; BAF3; BCL6; ESR1; FOS; FOXC1; FOXP1; FOXP2; GATA2; GATA4;
 GATA6; MITE; SATB1; SOX4; SP1; SPIB; STAT1; TP53; ZNF263;

Transcription factor motif information

Motif ID : BRCA1_HUMAN.H11MO.0.D
 Motif sequence : TGTGTGTTG
 FIMO scores : 11.0964000
 FIMO statistical significance (p-value, q-value) : (5.9e-0,0.80700)
 Motif location (Start Position, End Position) : (68,76)
 Motif strand orientation: Negative

Motif weblogo for BRCA1 :

bits

5' 5 3'

WebLogo 3.7.12

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[ZNF263](#)

Transcription factor motif information

Motif ID : BRCA1_HUMAN.H11MO.0.D
 Motif sequence : TGTGTGTTG
 FIMO scores : 11.0964000
 FIMO statistical significance (p-value, q-value) : (5.9e-0,0.80700)
 Motif location (Start Position, End Position) : (68,76)
 Motif strand orientation: Negative

Motif weblogo for BRCA1 :

bits

5' 5 3'

WebLogo 3.7.12

Gene regulation

BRCA1 -----| OR1A1

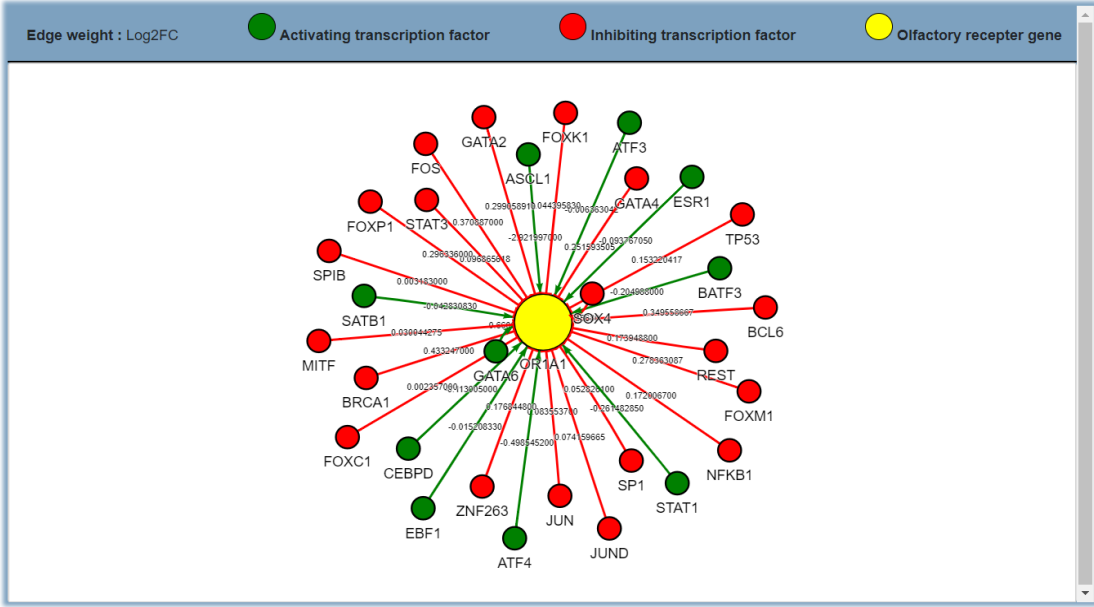
Regulation : Repression
 Log2(FC) : 0.433247000

Biological process :
 GO:0006357 : regulation of transcription from RNA polymerase II promoter
 GO:0045892 : negative regulation of transcription, DNA-templated

1.4 Network Analysis

ORTRD constructs a Gene Regulatory Network (GRN) by combining human olfactory gene and their TF interaction datasets. Users can submit a gene symbol or transcription factor symbol to visualize a Gene-Transcriptional regulatory network. Target Gene-TF relationships supported by the ChIP-Seq data have bold edges in the network based on Log2(FC) value.

Gene regulatory network associated with OR1A1



-- END--