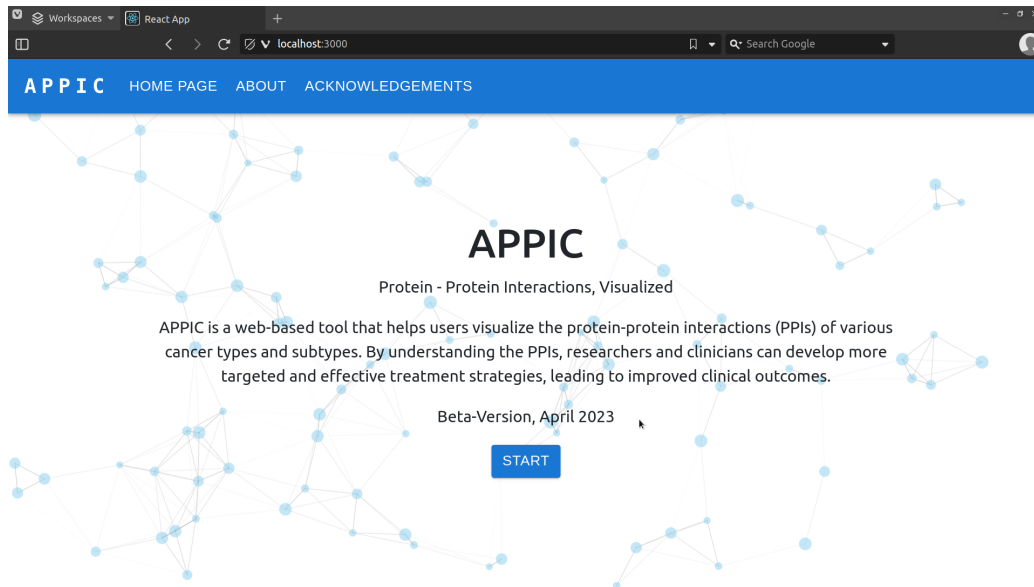


APPIC
Atlas of Protein Protein Interactions in Cancer
User Guide

version 1.0
June 2023

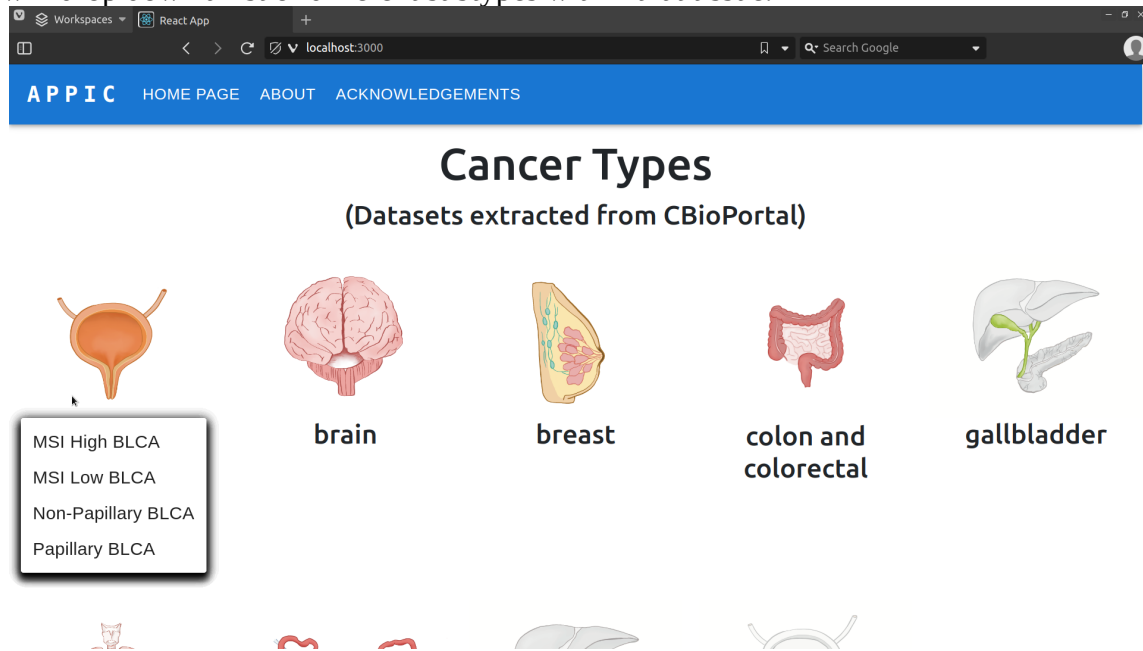
Start

The web tool starts at this landing page. To start searching different cancer subtypes, click “START”

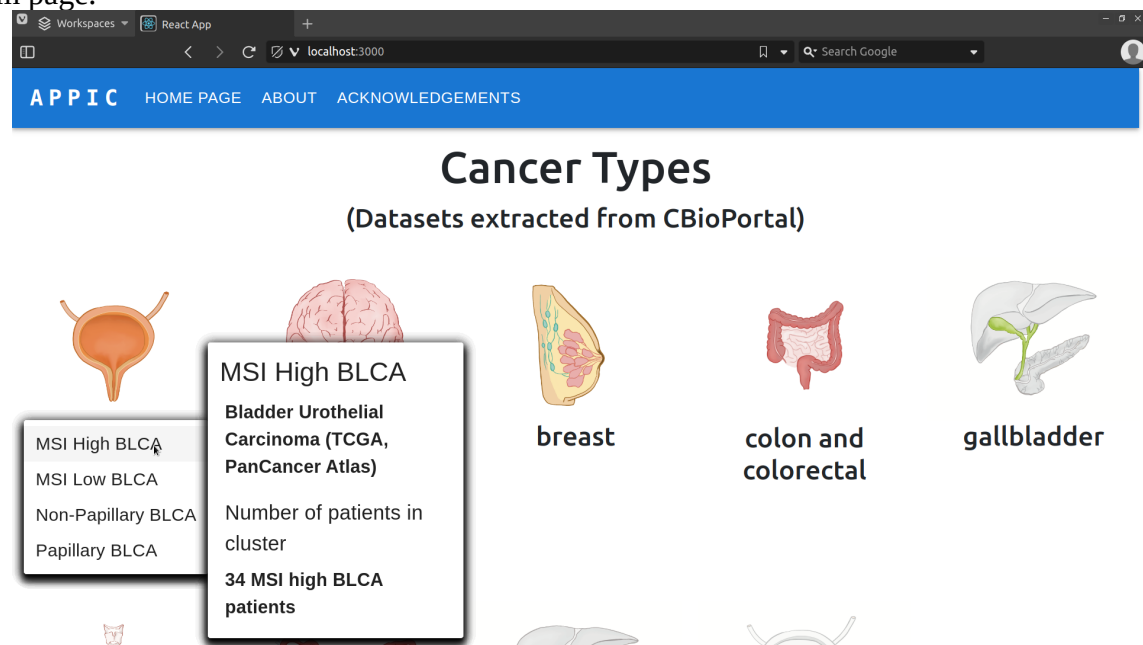


Body Diagram Page

After clicking “START”, the web tool will bring you to this page. Here, you can click on each organ which will drop down a list of different subtypes within that tissue.

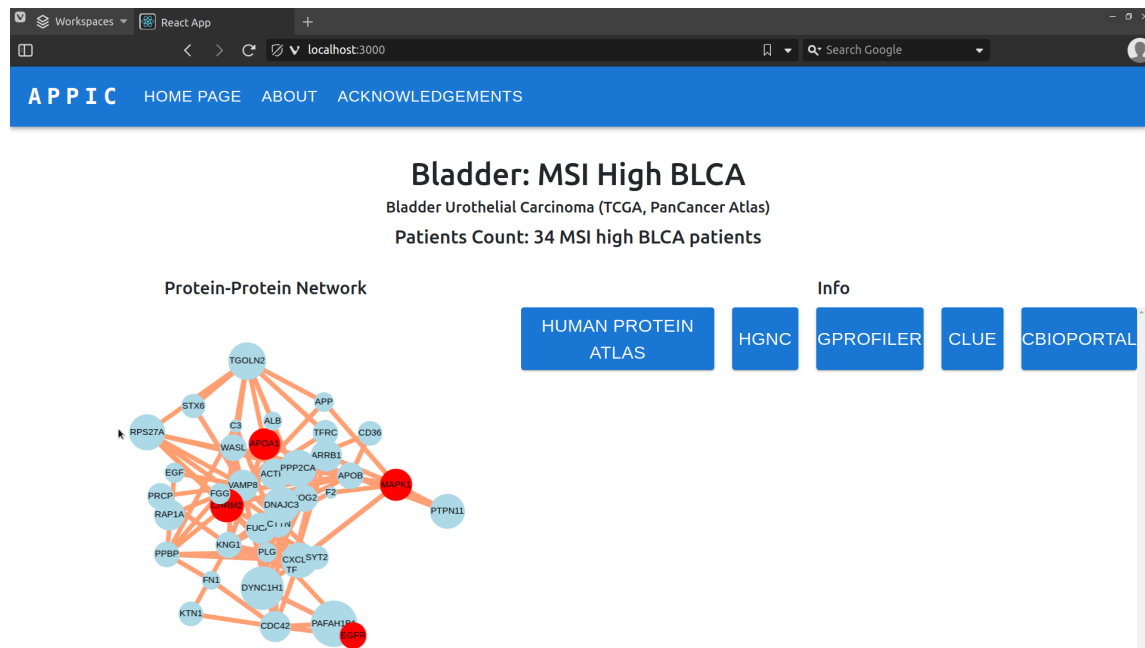


Users can also hover their mouse over each subtype to open a popup box which describes the dataset used to create the cancer subtype. Clicking on a cancer subtype will bring the user to the network diagram page.



Network Diagram Page

Here, the protein-protein interaction network for this cancer subtype is displayed on the left. Nodes colored in red indicate existing drug targets (see Clue.io database notes).



On the right hand side are the several databases linked to the protein-protein interaction network. Users can click on each button to view results from the databases.

Human Protein Atlas

Users should click on a node in the network diagram to create a response.

The screenshot shows the Human Protein Atlas web application. The top navigation bar includes "APPIC", "HOME PAGE", "ABOUT", and "ACKNOWLEDGEMENTS". The main heading is "Bladder: MSI High BLCA", with subtext "Bladder Urothelial Carcinoma (TCGA, PanCancer Atlas)" and "Patients Count: 34 MSI high BLCA patients".

On the left, a "Protein-Protein Network" diagram shows a complex web of interconnected protein nodes. Nodes are represented as circles of various colors (blue, red, orange) and are connected by orange lines. Some nodes are labeled with gene symbols like TGOLN2, STX6, C3, ALB, APP, CD36, TFRG, ARRB1, PPP2CA, APOB, F2, MAPK1, PTPN11, EGF, WASL, ACT1, DNAJC3, OG2, FUC1, KNG1, PLG, CXCLSYT2, TF, DYNC1H1, PAFAH1B1, EGFR, CDC42, KTN1, FN1, PPBP, RAP1A, PRCP, RPS27A, and EGF.

On the right, an "Info" section contains buttons for "HUMAN PROTEIN ATLAS", "HGNC", "GPROFILER", "CLUE", and "CBIOPORTAL". Below these buttons is a search result for "PTPN11" from the Human Protein Atlas. The search result shows a summary of the protein, including its name, gene name, and protein class. The protein is identified as "Protein tyrosine phosphatase non-receptor type 11" (PTPN11) and is associated with various diseases and enzymes.

HGNC

Users should click on a node in the network diagram to create a response.

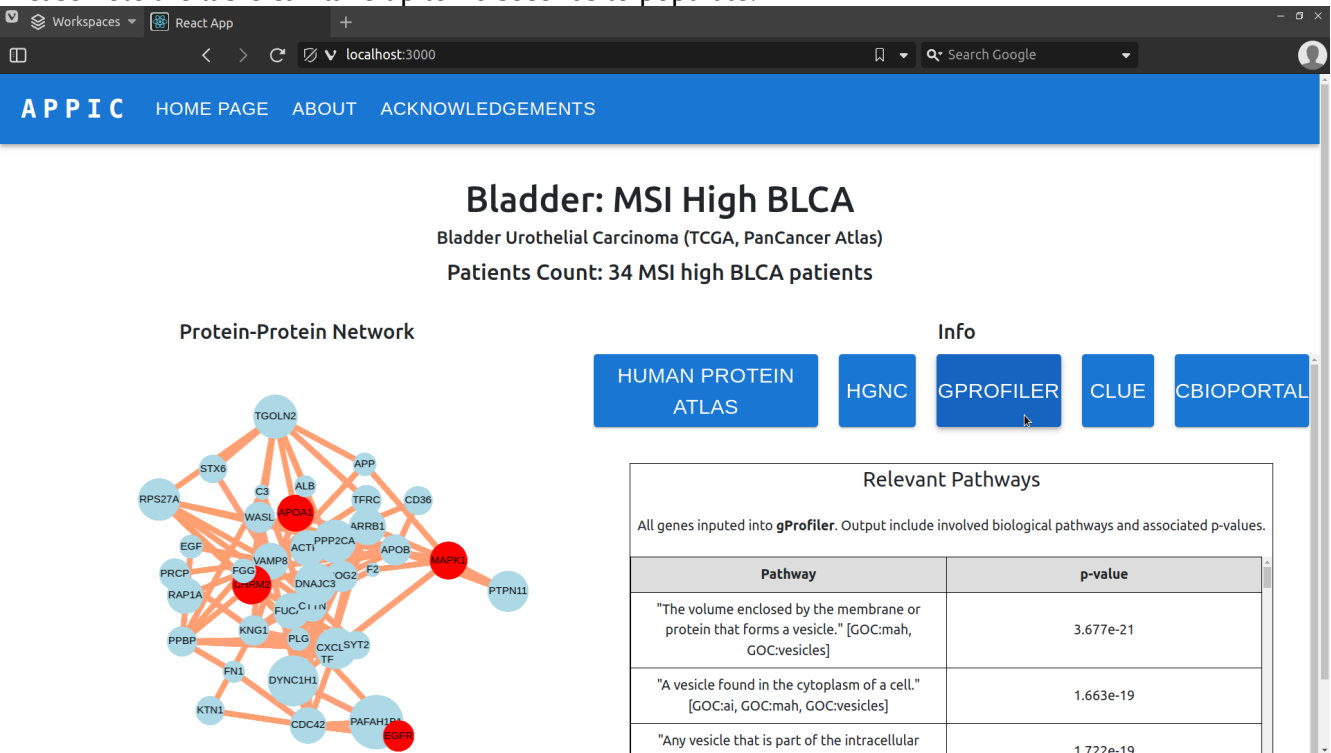
The screenshot shows the HGNC web application. The top navigation bar includes "APPIC", "HOME PAGE", "ABOUT", and "ACKNOWLEDGEMENTS". The main heading is "Bladder: MSI High BLCA", with subtext "Bladder Urothelial Carcinoma (TCGA, PanCancer Atlas)" and "Patients Count: 34 MSI high BLCA patients".

On the left, a "Protein-Protein Network" diagram shows a complex web of interconnected protein nodes. Nodes are represented as circles of various colors (blue, red, orange) and are connected by orange lines. Some nodes are labeled with gene symbols like TGOLN2, STX6, C3, ALB, APP, CD36, TFRG, ARRB1, PPP2CA, APOB, F2, MAPK1, PTPN11, EGF, WASL, ACT1, DNAJC3, OG2, FUC1, KNG1, PLG, CXCLSYT2, TF, DYNC1H1, PAFAH1B1, EGFR, CDC42, KTN1, FN1, PPBP, RAP1A, PRCP, RPS27A, and EGF.

On the right, an "Info" section contains buttons for "HUMAN PROTEIN ATLAS", "HGNC", "GPROFILER", "CLUE", and "CBIOPORTAL". Below these buttons is a search result for "PTPN11" from the HGNC. The search result shows a list of items, including "PTPN11: protein tyrosine phosphatase non-receptor type 11" and "PTPN11P1: PTPN11 pseudogene 1". The results are filtered by type (Gene) and show the gene name, HGNC ID, and status.

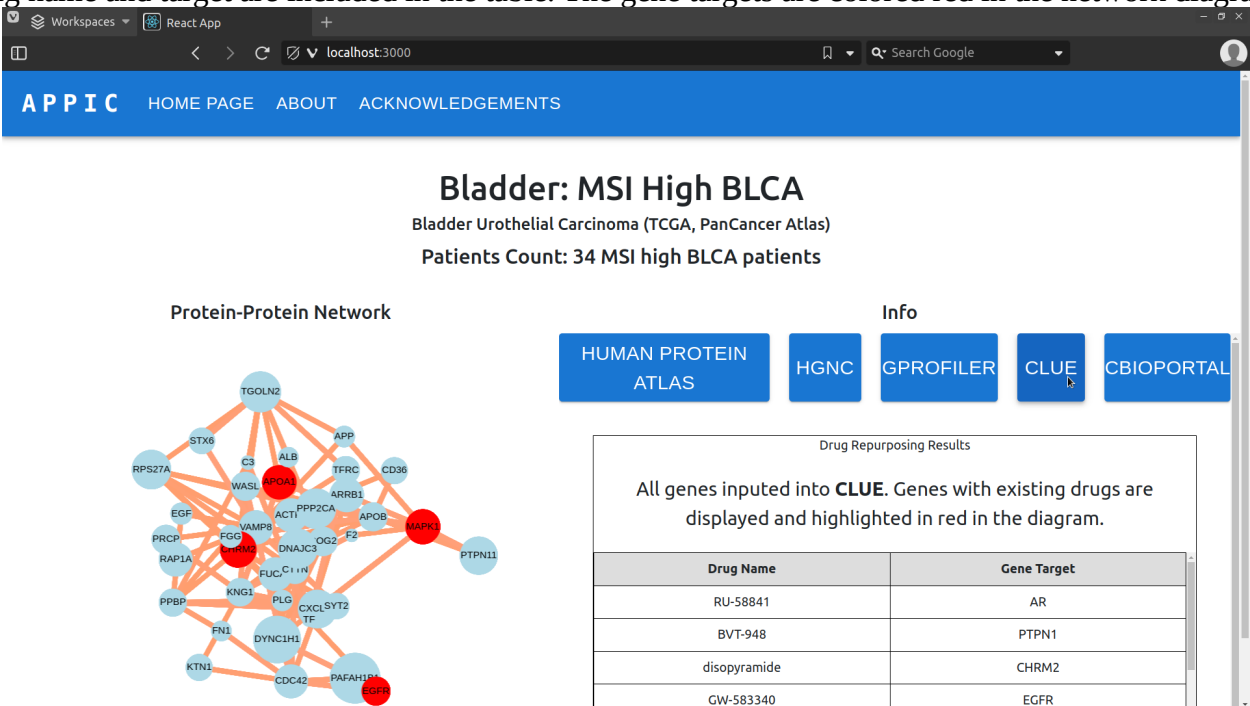
Gprofiler

All proteins are passed into gProfiler. The output is a table that represent biological pathways related to the proteins in the protein-protein interaction network. Biological pathways are ordered by p-value. Please note the table can take up to 10 seconds to populate.



Clue

All proteins are searched in the Clue.io database to see if any drugs that target these proteins exist. The drug name and target are included in the table. The gene targets are colored red in the network diagram.



CbioPortal

The specific patient IDs that create the cancer subtype are displayed. The survival plot represents the specific patients in the cancer subtype. Users have the options to download the Patient ID list as well as cBioPortal raw data.

