

DRAGON DATABASE OF GENES ASSOCIATED WITH PROSTATE CANCER (DDPC)

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RELEVANCE OF DATA SHARING!

Fragmented data on prostate cancer (PC) embedded in published biomedical literature

And the need to provide formatted data with biological relevance for generation of potential hypothesis

Our Prostate Cancer Knowledgebase can assist biologist to circumvent the large amount of energy and time spent in analyzing pertinent biological problems involving PC

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Dragon Database of Genes Implicated in Prostate Cancer

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DDPC

Expert reviewed information summary about the genes implicated in prostate cancer, including comprehensive information about every specific gene.

A centralized resource for researchers to support functional characterization and analysis of molecular processes related to prostate cancer.

Please cite

DDPC: Dragon Database of Genes associated with Prostate Cancer

Monique Maqungo; Mandeep Kaur; Samuel K. Kwofie; Aleksandar Radovanovic; Ulf Schaefer; Sebastian Schmeier; Ekow Oppon; Alan Christoffels; Vladimir B. Bajic

Nucleic Acids Research 2010; doi: 10.1093/nar/gkq849

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Accessibility: <http://apps.sanbi.ac.za/ddpc/> or <http://cbrc.kaust.edu.sa/ddpc>

Nucleic Acid Research, Maqungo et al., 2010

DRAGON DATABASE OF GENES ASSOCIATED WITH PC (DDPC)

What is DDPC?

- An integrated knowledge database that has been developed to provide researchers with a multitude of information related to PC and PC-related genes, with the aim to support research of PC at a molecular level

Why DDPC was created?

- To provide students, researchers and medical practitioners with enriched information on genes involved in PC

What are the benefits of using DDPC?

- DDPC provides gene-associated data such as protein annotation, molecular pathways, ontologies and transcription regulation

What is unique about DDPC?

- To the best of our knowledge there is no single comprehensive, web based resource that has integrated data solely on genes experimentally verified to be involved in PC
- It contains information on pre-compiled literature based text-mining report, transcription factor binding sites, drug and drug targets, and molecular pathways

DESCRIPTION OF DDPC

Architecture is based on three-layer structure

- Presentation layer – online graphical user interface developed using DHTML and JavaScript
- Logic layer – comprises server side PHP and Perl modules
- Data layer – MySQL data layer (relational database)

Data Mining

- Perl script – extracted data from Entrez Gene
- Retrieved 973 genes using query strings 'PC-related terms' and human(orgn)
- We manually curated the literature – experimental evidence such as western blot, RT-PCR, immunohistochemistry, tissue microarray etc.
- 704 genes were verified to associated with PC
- Additional information – PSA level, Gleason score
- Biological database such as GeneCards, HUGO, Entrez Gene

DrugBank data

- List of drugs with potential effect on PC
- Absorption, distribution, metabolism, excretion and toxicity (ADMET) descriptors, metabolizing enzymes, drug targets, coordinate files for proteins and small drug molecules
- Links to other drug database – RxList, KEGG drug and compound, PharmGKB and PubChem compound and substance

DESCRIPTION OF DDPC

Transcription Regulation

- DDPC provides information on regulatory potential of PC genes and associated regulatory networks
- Information on genes' promoters and putative transcription factor binding sites (TFBSs)
- Extracted 1766 promoters each covering region [-1000, +200] relative transcription start site of PC gene - FANTOM 3 promoter set based on CAGE libraries
- Mammalian matrix models in TRANSFAC Professional ver. 11.4 used map TFBSs to both strands of each promoter
- To decrease the incidence of false-positive TFBSs predictions - Match™ program with a profile for score thresholds that aims to minimize false positives
- All mammalian transcription factors (TFs) known to be associated with TRANSFAC position weight matrices were used to obtain information on binding of TFs to promoters of PC genes
- A total 689 mammalian TFs with unique ID were extracted from TRANSFAC as associated with our TFBS
- Information on predicted TFBS, the associated TFs and genes they potentially control which can be mined in DDPC


DESCRIPTION OF DDPC

Text-mining Information

- Pre-compiled list of text-mined information from PubMed records has been integrated into DDPC
- An overview on potential gene interactions/associations and pathways
- To generate a pre-compiled result, PubMed database was queried using PC keywords of each of the PC gene – ‘A26C3’ OR ‘POTE22’ AND mammal AND ‘cancer’
- List of 558 347 abstracts was obtained from PubMed and queried results were analyzed using Dragon Exploration System (DES)
- Text-mining dictionaries used by DES in this process were ‘metabolites and enzymes’, ‘genes and proteins’, and ‘chemical with pharmacological effects’
- Text-mining results are shown as list of tables and graphical representations of interactive networks of genes of interest with other essential biological receptors and pathways

GENE SEARCH

Dragon Database of Genes Implicated in Prostate Cancer


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Genes Search

Gene Search	Gene Select	Transcription Regulation	Batch Query
<p style="text-align: center;">Anatomical System</p> <ul style="list-style-type: none"> abdomen adipose tissue adrenal cortex adrenal gland adrenal medulla alveolus amnion amniotic fluid amygdala aorta appendix arterial adventitia artery bile duct bladder 	<p style="text-align: center;">Cell Line</p> <ul style="list-style-type: none"> (subclones of TRAMP-C1) 1-LN 148-1PA 1542CP3TX 22-RV1 22Rv1 22RV1 22RV1 22RV1b 267B 293 293T 293T (embryo kidney cel 3T3 3T3-L1 	<p style="text-align: center;">KEGG Pathways</p> <ul style="list-style-type: none"> ABC transporters Acute myeloid leukemia Adherens junction Adipocytokine signaling alpha-Linolenic acid met Alzheimer's disease Aminophosphonate meta Aminosugars metabolisr Androgen and estrogen i Antigen processing and p Apoptosis Arachidonic acid metabo Arginine and proline met Axon guidance B cell receptor signaling 	<p style="text-align: center;">GO Ontology</p> <ul style="list-style-type: none"> 1-acylglycerol-3-phosphi 1-phosphatidylinositol-3- 1-phosphatidylinositol-4- 15-hydroxyprostaglandin 2,3-dihydro-2,3-dihydroxy 20-alpha-hydroxysteroid 3'-5' exonuclease activity 3-alpha-hydroxysteroid c 3-beta-hydroxy-delta5-st 3-galactosyl-N-acetylglu 3-hydroxypalmitoyl-[acyl 3-oxo-5-alpha-steroid 4-c 3-oxoacyl-[acyl-carrier-p 3-oxoacyl-[acyl-carrier-p 4 iron, 4 sulfur cluster binc
<p>Make any combination of one ore more selections. For multiple selections inside the same box hold Ctrl and click.</p> <p style="text-align: center;"> <input type="button" value="Query"/> <input type="button" value="Reset"/> </p>			

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GENE SELECT

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Genes Search

Gene Search | **Gene Select** | Transcription Regulation | Batch Query

Select one or more genes to display

Gene Symbol	EntrezID
ACAT2	39
ACE	1636
ACOX3	8310
ACPP	55
ACSL3	2181
ACSL4	2182
ACTN4	81
ACVR2A	92
ADAM10	102
ADAM15	8751
ADAM17	6868
ADAM9	8754
ADAMTS1	9510
ADAMTS15	170689
ADAMTS5	11096
ADAMTS9	56999

OR

Select one or more genes to display

EntrezID	Gene Symbol
2	A2M
9	NAT1
10	NAT2
31	ACACA
38	ACAT1
39	ACAT2
55	ACPP
81	ACTN4
92	ACVR2A
102	ADAM10
116	ADCYAP1
117	ADCYAP1R1
133	ADM
148	ADRA1A
177	AGER


Select Reset

Select Reset

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LIST OF GENES

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List of genes


1 genes found:

#	Symbol	Aliases	Name	EntrezID	Details
1.	ADAM10	kuz, madm, hst18717, cd156c	ADAM metallopeptidase domain 10	102	 

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GENE DETAILS

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Gene details

Gene details	ADAM10: General Information
General Information	Gene symbol ADAM10
Gene in other resources	Gene name ADAM metalloproteinase domain 10
Experimental Evidence	Gene aliases kuz, madm, hst18717, cd156c
Related Proteins	Gene previous names a disintegrin and metalloproteinase domain 10
eVoc Ontologies	Gene previous symbols
Gene Ontologies	Species H.sapiens
Associated Pathways	Chromosome 15q2
Associated Diseases	
Ortholog Genes	
Regulations	
Text Mining Reports	

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EXTERNAL DATABASES

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Gene details

Gene details	ADAM10: Gene in other resources
General Information	
Gene in other resources	EMBL AF169226, AL137536, AL391684, BC098103, BC098134, BC098279, BC098307, AF009615, BC126253, Z48579
Experimental Evidence	
Related Proteins	GenBank NNM_001110, AF009615, BC126253, Z48579, AK023460, BM808207, BG171245, BG290101, AL561090, AL528303, BX414688, BG120612, CR621666, BF982994, BQ721955, BP380593, BX372217, BG286626, BQ681504, BQ684174, BG165470, BQ681245, BG328482, BG529940, BG170849, BC055087, BC104659, BQ423636, AU11
eVoc Ontologies	
Gene Ontologies	
Associated Pathways	
Associated Diseases	
Ortholog Genes	
Regulations	PubMed 17727679
Text Mining Reports	Refseq RNA NM_001110.2
	Ensembl ID ENSG00000137845
	Entrez Gene ID 102
	Unigene ID Hs.578508

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Gene details

Gene details	ADAM10: Related Protein Information
General Information	Swiss-Prot ADA10_HUMAN
Gene in other resources	Refseq Peptide NP_001101.1
Experimental Evidence	Uniprot ID O14672
Related Proteins	PDB 1M1I
eVoc Ontologies	
Gene Ontologies	
Associated Pathways	
Associated Diseases	
Ortholog Genes	
Regulations	
Text Mining Reports	

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EXPERIMENTAL EVIDENCE

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Gene details

Gene details	ADAM10: Experimental Evidence
General Information	Cell line LNCaP
Gene in other resources	Disease stage
Experimental Evidence	Tumour grade < 7, > 7
Related Proteins	Mechanism
eVoc Ontologies	PC type benign prostate hypertrophy (BPH), prostate cancer (PC)
Gene Ontologies	Expression state
Associated Pathways	Tissue type prostate
Associated Diseases	Cell type somatic
Ortholog Genes	Evidence immunoblotting, coimmunoprecipitation, immunocytochemistry
Regulations	PubMed 17727679
Text Mining Reports	

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EXTERNAL DATABASES

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Gene details

Gene details	ADAM10: eVoc Expression Profiles														
General Information															
Gene in other resources															
Experimental Evidence															
Related Proteins															
eVoc Ontologies															
Gene Ontologies															
Associated Pathways															
Associated Diseases															
Ortholog Genes															
Regulations															
Text Mining Reports															
	<table border="1"> <thead> <tr> <th>eVoc Category</th> <th>eVoc Terms</th> </tr> </thead> <tbody> <tr> <td>Anatomical System</td> <td>adrenal cortex adrenal gland alveolus amygdala bladder blood bone bone marrow brain breast cartilage cecum choroid colon cornea coronary artery duodenum endometrium esophagus foreskin fovea centralis frontal lobe germinal center heart ileum iris islet of Langerhans kidney large intestine larynx lens liver lung lymphoreticular system macula lutea mammary gland mesenchyma mucosa muscle occipital lobe optic nerve ovary pancreas parathyroid parietal lobe pituitary gland placenta prostate renal medulla retina skeletal muscle skin small intestine spleen stomach sympathetic chain synovium testis thalamus thymus thyroid umbilical cord unclassifiable urinary system uterus whole body</td> </tr> <tr> <td>Associated With</td> <td>pending</td> </tr> <tr> <td>Cell Type</td> <td>adipocyte B cell endothelial cell epithelial cell fibroblast macrophage melanocyte monoblast monocyte neuroblast proerythroblast retinal pigment epithelial cell skeletal muscle cell smooth muscle cell squamous cell stem cell T cell transitional cell unclassifiable</td> </tr> <tr> <td>Development Stage</td> <td>1 year 10 weeks 12 weeks 13 years 14 years 15 years 16 years 17 weeks 19 weeks 19 years 2 years 20 weeks 27 years 3 years 37 years 45 years 50 years 54 years 55 years 58 years 65 years 76 years 8 weeks 9 weeks adolescent adult child elderly embryo female fetus infant male unclassifiable</td> </tr> <tr> <td>Experimental Technique</td> <td>Clontech non-normalized EST Krizman protocol 1 Krizman protocol 2 Krizman protocol R-D LTI non-normalized LTI normalized non-normalized normalized ORESTES pending Rubin non-normalized Soares non-normalized Soares normalized Soares subtracted subtracted</td> </tr> <tr> <td>Microarray Platform</td> <td>not applicable</td> </tr> </tbody> </table>	eVoc Category	eVoc Terms	Anatomical System	adrenal cortex adrenal gland alveolus amygdala bladder blood bone bone marrow brain breast cartilage cecum choroid colon cornea coronary artery duodenum endometrium esophagus foreskin fovea centralis frontal lobe germinal center heart ileum iris islet of Langerhans kidney large intestine larynx lens liver lung lymphoreticular system macula lutea mammary gland mesenchyma mucosa muscle occipital lobe optic nerve ovary pancreas parathyroid parietal lobe pituitary gland placenta prostate renal medulla retina skeletal muscle skin small intestine spleen stomach sympathetic chain synovium testis thalamus thymus thyroid umbilical cord unclassifiable urinary system uterus whole body	Associated With	pending	Cell Type	adipocyte B cell endothelial cell epithelial cell fibroblast macrophage melanocyte monoblast monocyte neuroblast proerythroblast retinal pigment epithelial cell skeletal muscle cell smooth muscle cell squamous cell stem cell T cell transitional cell unclassifiable	Development Stage	1 year 10 weeks 12 weeks 13 years 14 years 15 years 16 years 17 weeks 19 weeks 19 years 2 years 20 weeks 27 years 3 years 37 years 45 years 50 years 54 years 55 years 58 years 65 years 76 years 8 weeks 9 weeks adolescent adult child elderly embryo female fetus infant male unclassifiable	Experimental Technique	Clontech non-normalized EST Krizman protocol 1 Krizman protocol 2 Krizman protocol R-D LTI non-normalized LTI normalized non-normalized normalized ORESTES pending Rubin non-normalized Soares non-normalized Soares normalized Soares subtracted subtracted	Microarray Platform	not applicable
eVoc Category	eVoc Terms														
Anatomical System	adrenal cortex adrenal gland alveolus amygdala bladder blood bone bone marrow brain breast cartilage cecum choroid colon cornea coronary artery duodenum endometrium esophagus foreskin fovea centralis frontal lobe germinal center heart ileum iris islet of Langerhans kidney large intestine larynx lens liver lung lymphoreticular system macula lutea mammary gland mesenchyma mucosa muscle occipital lobe optic nerve ovary pancreas parathyroid parietal lobe pituitary gland placenta prostate renal medulla retina skeletal muscle skin small intestine spleen stomach sympathetic chain synovium testis thalamus thymus thyroid umbilical cord unclassifiable urinary system uterus whole body														
Associated With	pending														
Cell Type	adipocyte B cell endothelial cell epithelial cell fibroblast macrophage melanocyte monoblast monocyte neuroblast proerythroblast retinal pigment epithelial cell skeletal muscle cell smooth muscle cell squamous cell stem cell T cell transitional cell unclassifiable														
Development Stage	1 year 10 weeks 12 weeks 13 years 14 years 15 years 16 years 17 weeks 19 weeks 19 years 2 years 20 weeks 27 years 3 years 37 years 45 years 50 years 54 years 55 years 58 years 65 years 76 years 8 weeks 9 weeks adolescent adult child elderly embryo female fetus infant male unclassifiable														
Experimental Technique	Clontech non-normalized EST Krizman protocol 1 Krizman protocol 2 Krizman protocol R-D LTI non-normalized LTI normalized non-normalized normalized ORESTES pending Rubin non-normalized Soares non-normalized Soares normalized Soares subtracted subtracted														
Microarray Platform	not applicable														

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TRANSCRIPTION REGULATION

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Gene details

Gene details	ADAM10: Transcription Regulation			
General Information	TF ID ▼	TF Symbol	EntrezID	UniprotID
Gene in other resources	T00017	C/EBPbeta(p35)	12608	P28033
Experimental Evidence	T00018	AhR	11622	P30561
Related Proteins	T00019	AhR	25690	P41738
eVoc Ontologies	T00033	AP-2alpha	21418	P34056
Gene Ontologies	T00035	AP-2alphaA	7020	P05549
Associated Pathways	T00036	AP-4	7023	Q01664
Associated Diseases	T00045	COUP-TF2	7026	P24468
Ortholog Genes	T00052	ATF-a	11016	P17544
Regulations	T00053	ATFa-isoform1	11016	P17544
Text Mining Reports	T00070	Pax-5	5079	Q02548
	T00100	CDP	1523	P39880-1
	T00104	C/EBPalpha	12606	P53566
	T00105	C/EBPalpha	1050	P49715
	T00107	C/EBPalpha	427549	
	T00108	C/EBPalpha	24252	P05554
	T00109	C/EBPdelta	25695	Q03484
	T00111	c-Ets-1	23871	P27577
	T00112	c-Ets-1	2113	P14921
	T00113	c-Ets-2	2114	P15036
	T00114	c-Ets-1 54		P13474
	T00115	c-Ets-1 68	396235	P15062
	T00116	c-Ets-2 58-64		P10157
	T00122	c-Fos	14281	P01101
	T00123	c-Fos	2353	P01100
	T00124	c-Fos	314322	P12841
	T00125	c-Fos		P11939
	T00128	HOXA4		P17277

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TEXT MINING REPORTS

Human Genes+Proteins Metabolites+Enzymes Toxins Chemicals with pharmacological effects

Searching for: ABC2 ATP-BINDING CASSETTE PROTEIN
Abstracts found: 1

Page: 1

1) 11804192

The role of half-transporters in multidrug resistance.

ATP-binding cassette proteins comprise a superfamily of transporter proteins, a subset of which have been implicated in multidrug resistance. Although P-glycoprotein was described over 15 years ago, the recent expansion in the number of transporters identified has prompted renewed interest in the role of drug transporters in clinical drug resistance. These newly identified transporters include additional members of the MRP family, ABC2, and a new half-transporter, MXR/BCRP/ABCP1. This half-transporter confers high levels of resistance to mitoxantrone, anthracyclines, and the camptothecins SN-38 and topotecan. At 72 kDa, MXR localizes to the plasma membrane in cells which highly overexpress the protein either through gene amplification or through gene rearrangement. Future studies will be aimed at identifying an inhibitor, and attempting to translate recognition of this new transporter into a target for anticancer treatment.

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SUMMARY OF RESULTS

Change dictionary: **Metabolites+Enzymes** **Toxins** **Chemicals with pharmacological effects**

Human Genes+Proteins:

(0 1 2 3 4 5 6 7 8 9 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Page: 1 2 3 4

[ab] [ac] [ad] [ae] [af] [ah] [ak] [al] [am] [an] [ap] [aq] [ar] [at]

A

ABC2 ->

ATP-BINDING CASSETTE PROTEIN [1] MRP [1] MXR [1] P-GLYCOPROTEIN [1]
CAMPTOTHECIN [1] MITOXANTRONE [1] TOPOTECAN [1]
ANTHRACYCLINE [1]

draw network | show hypotheses

ABCA1 ->

ABCA12 [1] ABCA3 [1] ABCB1 [1] ABCB3 [1] ABCB6 [1] ABCC1 [1] ABCC11 [1] ABCC13 [1] ABCC5 [1] ABC
[1] ABCF2 [1] ABCG2 [1] BCRP [1] BREAST CANCER RESISTANCE PROTEIN [1] CFTR [1] CYSTIC FIBROSIS
TRANSMEMBRANE CONDUCTANCE REGULATOR [1] MAL [1] MRP1 [1] MULTIDRUG RESISTANCE-ASSOCIATED
PROTEIN 1 [1] P-GLYCOPROTEIN [1] P-GP [1] ABC TRANSPORTER [2]
5-FLUOROURACIL [1] CYCLOPHOSPHAMIDE [1] EPIRUBICIN [1] OLIGONUCLEOTIDE [1] PACLITAXEL [1] ATP [2]
AIR POLLUTANTS [1] ABC [2]

draw network | show hypotheses

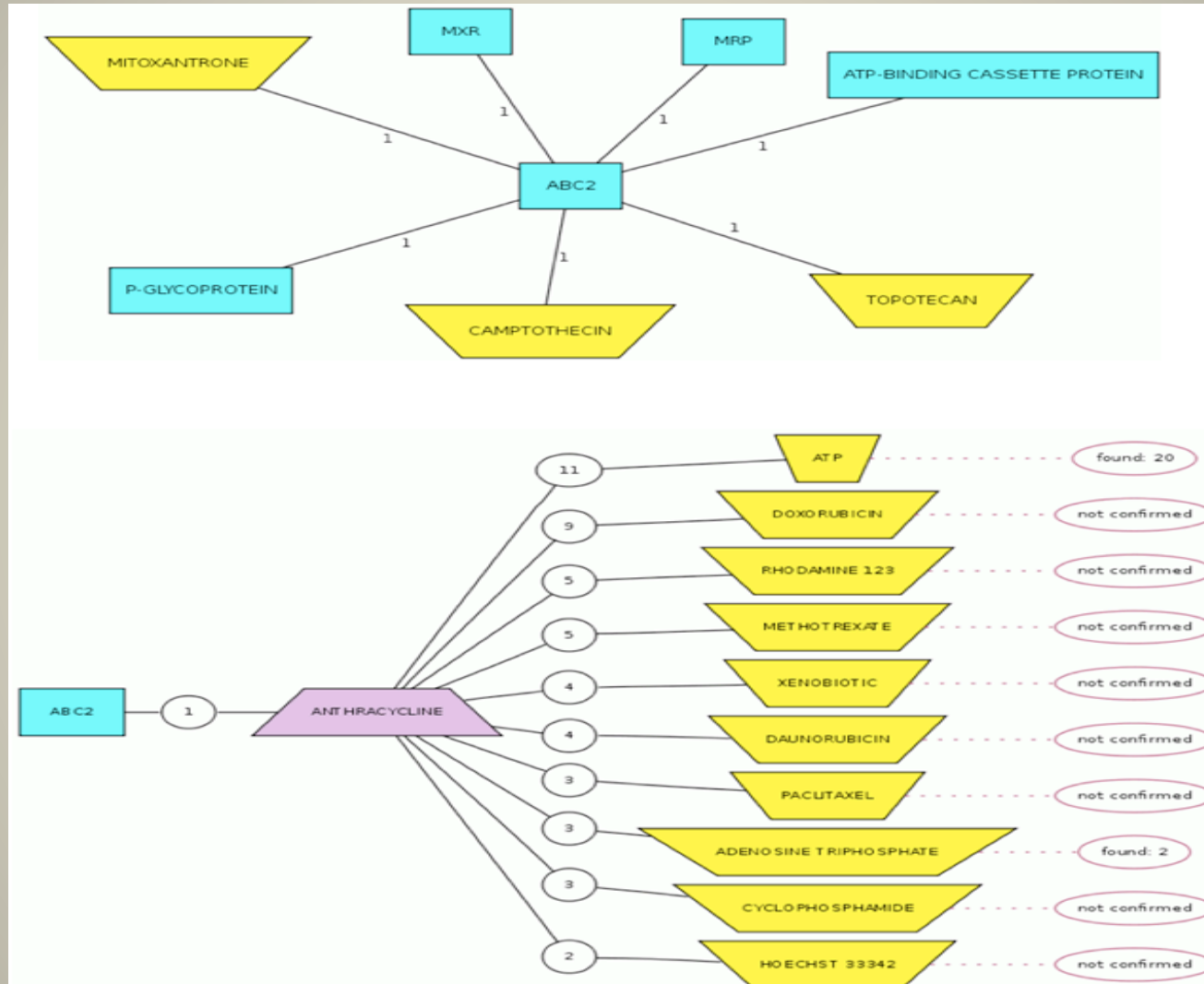
ABCA12 ->

ABC TRANSPORTER [1] ABCA1 [1] ABCB1 [1] ABCB3 [1] ABCB6 [1] ABCC1 [1] ABCC11 [1] ABCC13 [1]
ABCC5 [1] ABCC7 [1] ABCF2 [1] ABCG2 [1]
5-FLUOROURACIL [1] ATP [1] CYCLOPHOSPHAMIDE [1] EPIRUBICIN [1] OLIGONUCLEOTIDE [1] PACLITAXEL [1]
ABC [1]

draw network | show hypotheses


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DRAW NETWORK



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DRUG SEARCH

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A photograph of a large, classical-style building with a portico supported by columns and two prominent towers with conical roofs. People are visible walking in front of the building.

DDPC

Expert reviewed information summary about the genes implicated in prostate cancer, including comprehensive information about every specific gene.

A centralized resource for researchers to support functional characterization and analysis of molecular processes related to prostate cancer.


Start exploring...

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Maqungo et al., 2010

LIST OF DRUGS



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Drugs Search

1. **Abarelix** For palliative treatment of advanced prostate cancer.
2. **Alfuzosin** For the treatment of the signs and symptoms of benign prostatic hyperplasia.
3. **Aminoglutethimide** For the suppression of adrenal function in selected patients with Cushing's syndrome, malignant neoplasm of the female breast, and carcinoma in situ of the breast.
4. **Bicalutamide** For treatment (together with surgery or LHRH analogue) of advanced prostatic cancer.
5. **Capromab** For diagnosis of prostate cancer and detection of intra-pelvic metastases
6. **Cephalexin** For the treatment of respiratory tract infections caused by *Streptococcus pneumoniae* and *Streptococcus pyogenes*; otitis media due to *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Staphylococcus aureus*, *Streptococcus pyogenes*, and *Moraxella catarrhalis*; skin and skin structure infections caused by *Staphylococcus aureus* and/or *Streptococcus pyogenes*; bone infections caused by *Staphylococcus aureus* and/or *Proteus mirabilis*; genitourinary tract infections, including acute prostatitis, caused by *Escherichia coli*, *Proteus mirabilis*, and *Klebsiella pneumoniae*.
7. **Chlorotrianisene** Used to treat symptoms of menopause, deficiencies in ovary function (including underdevelopment of female sexual characteristics and some types of infertility), and in rare cases, prostate cancer. Chlorotrianisene may also be used to prevent breast engorgement following childbirth.
8. **Ciprofloxacin** For the treatment of the following infections caused by susceptible organisms: urinary tract infections, acute uncomplicated cystitis, chronic bacterial prostatitis, lower respiratory tract infections, acute sinusitis, skin and skin structure infections, bone and joint infections, complicated intra-abdominal infections (used in combination with metronidazole), infectious diarrhea, typhoid fever (enteric fever), uncomplicated cervical and urethral gonorrhoea, and inhalational anthrax (post-exposure).
9. **Conjugated Estrogens** For the treatment of moderate to severe vasomotor symptoms associated with the menopause, atrophic vaginitis, osteoporosis, hypoestrogenism due to hypogonadism, castration, primary ovarian failure, breast cancer (for palliation only), and Advanced androgen-dependent carcinoma of the prostate (for palliation only)

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DRUG INFORMATION

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Drug name	Alfuzosin
Description	Alfuzosin (INN, provided as the hydrochloride salt) is an alpha-adrenergic blocker used to treat benign prostatic hyperplasia (BPH). It works by relaxing the muscles in the prostate and bladder neck, making it easier to urinate. [Wikipedia]
DrugBank	Primary Accession Number: DB00346
DIN	02245565
Type	Approved, Investigational, Small Molecule
Indication	For the treatment of the signs and symptoms of benign prostatic hyperplasia.
Mechanism of Action	Alfuzosin acts by inhibiting the postsynaptic alpha(1)-adrenoceptors on vascular smooth muscle. This inhibits the vasoconstrictor effect of circulating and locally released catecholamines (epinephrine and norepinephrine), resulting in peripheral vasodilation.
Absorption	Absorption is 50% lower under fasting conditions
Toxicity	Side effects are dizziness (due to postural hypotension), upper respiratory tract infection, headache, and fatigue.
Protein Binding	82%-90%
Interactions	DrugBank: Interaction Insert Showing Interaction Insert for Alfuzosin Drug-Drug Interactions: The pharmacokinetic and pharmacodynamic interactions between UROXATRAL and other alpha-blockers have not been determined. However, interactions may be expected, and UROXATRAL should NOT be used in combination with other alpha-blockers.
RXList	http://www.rxlist.com/cgi/generic/uroxatral.htm
KEGG	drug: D01692 / compound: Not Available
PubChem	compound: 2092 / substance: 682525
PharmGKB	PA164774795

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