

June. 10th 2021

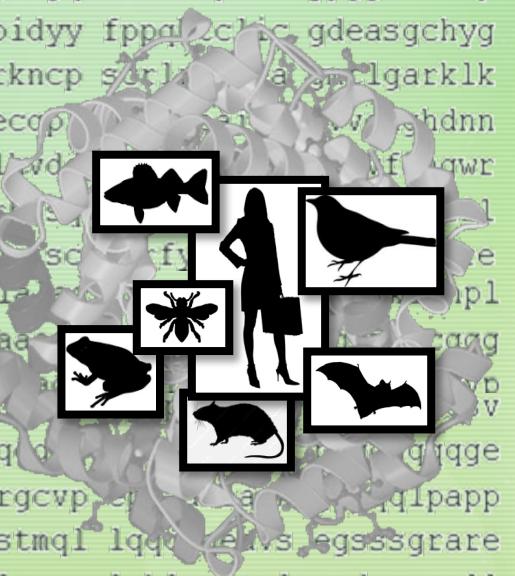
Carlie A. LaLone, Ph.D.

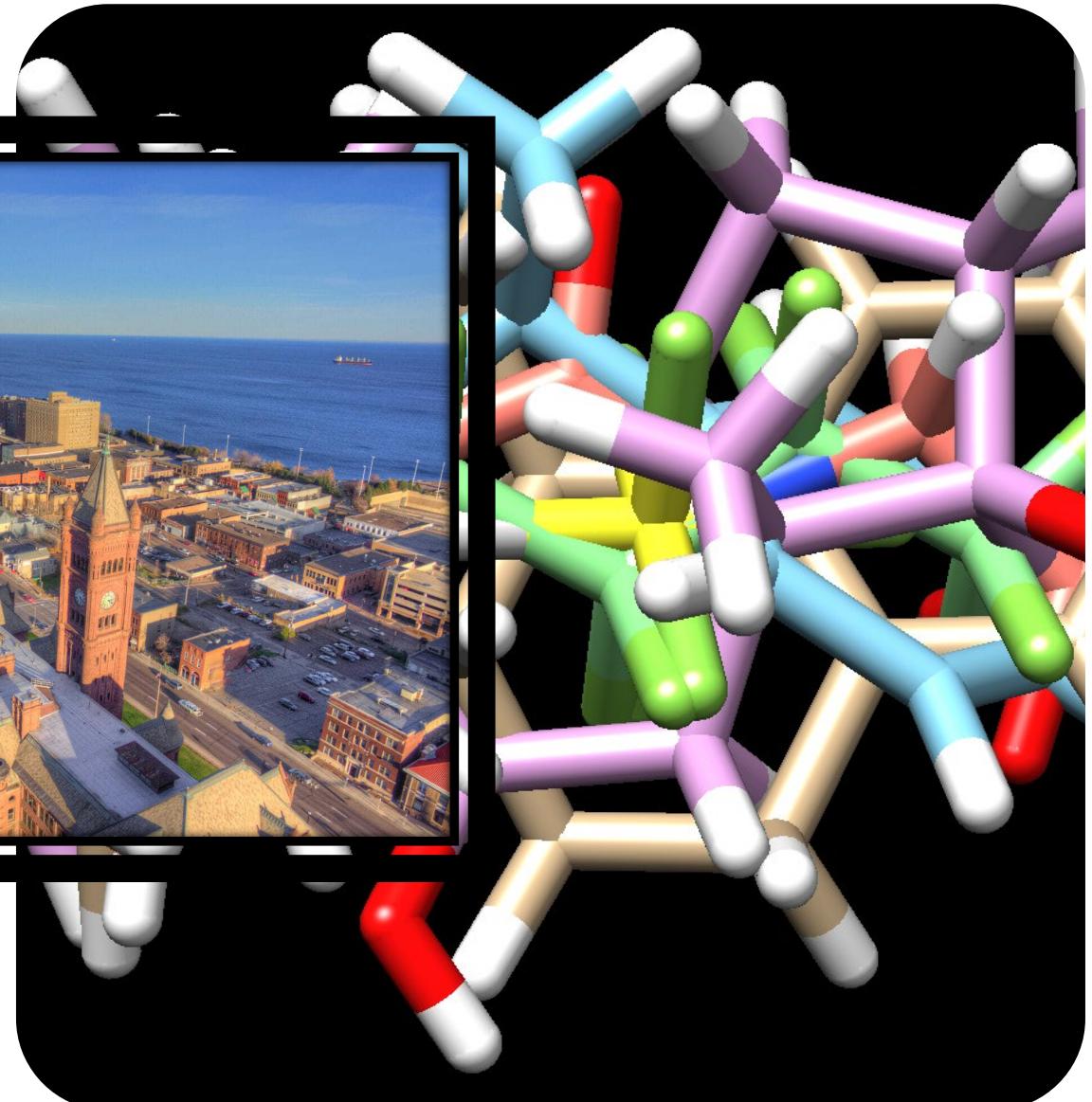
Research Bioinformaticist

SeqAPASS v5.0

An Emphasis on Rapid Data Synthesis and Interpretation

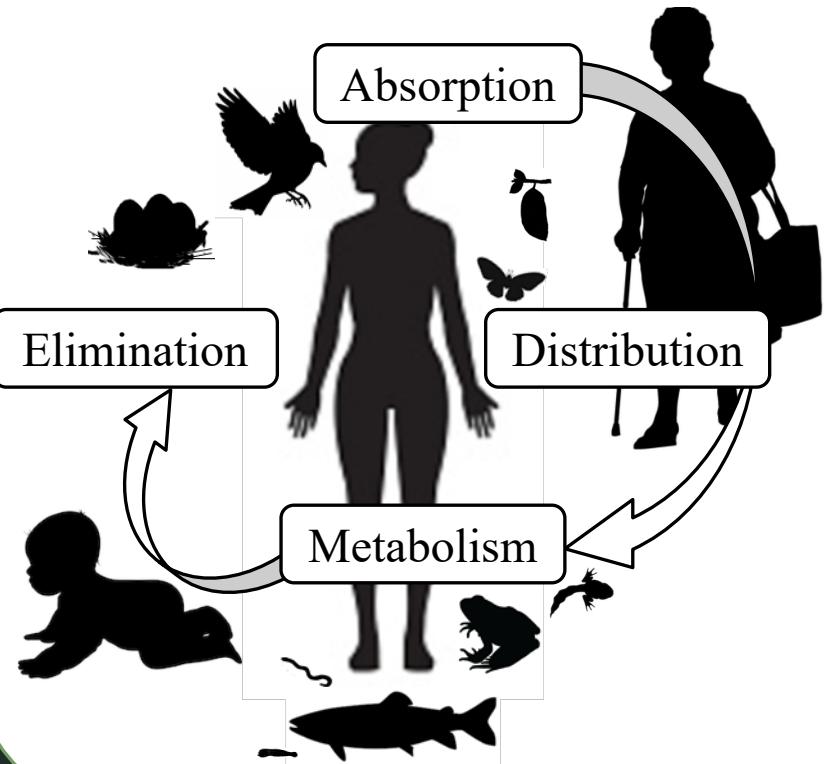
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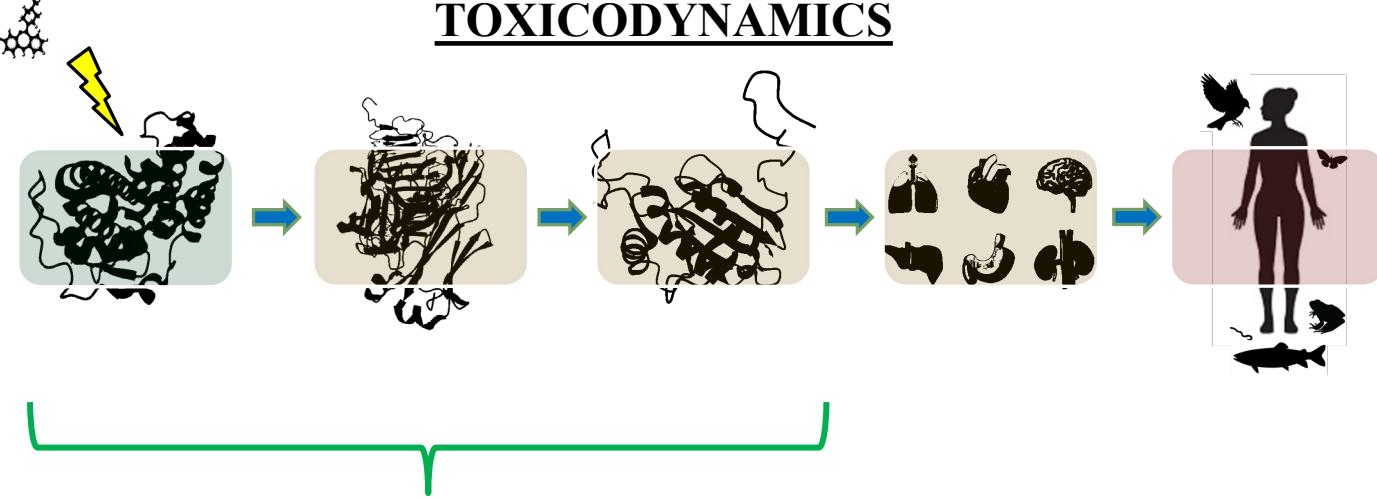
Simplify Complexity

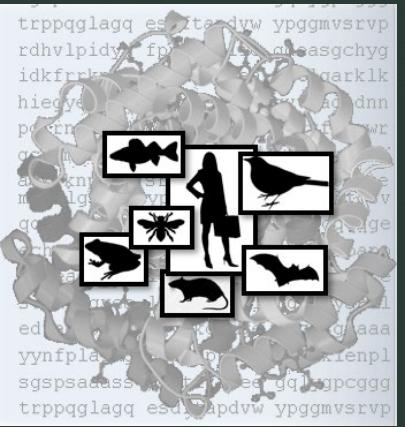
TOXICOKINETICS



Cross Species Extrapolation

TOXICODYNAMICS





<https://seqapass.epa.gov/seqapass/>

Sequence Alignment to Predict Across Species Susceptibility (SeqAPASS)



SOT | Society of Toxicology
www.toxsci.oxfordjournals.org

TOXICOLOGICAL SCIENCES, 153(2), 2016, 228–245

doi: 10.1093/toxsci/kfw119
Advance Access Publication Date: June 30, 2016
Research article

Sequence Alignment to Predict Across Species Susceptibility (SeqAPASS): A Web-Based Tool for Addressing the Challenges of Cross-Species Extrapolation of Chemical Toxicity

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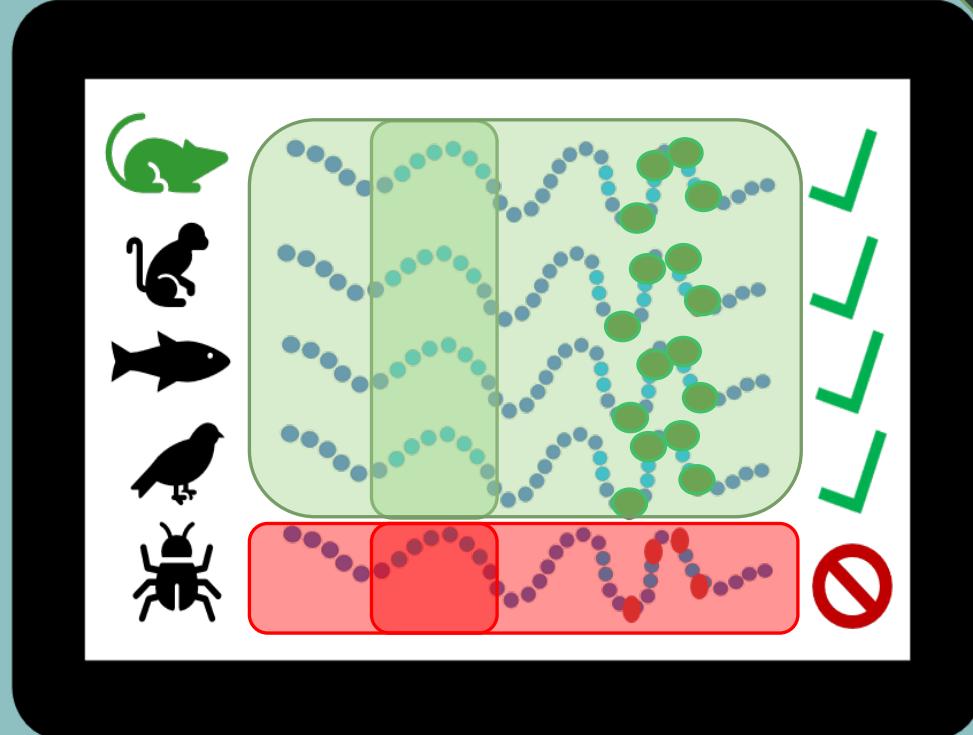
Flexible Analysis Based On Available Data

Level 1 Primary Amino Acid Sequence Alignments

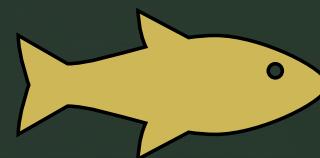
Level 2 Conserved Functional Domain Alignments

Level 3 Critical (Close Contact) Amino Acid Conservation

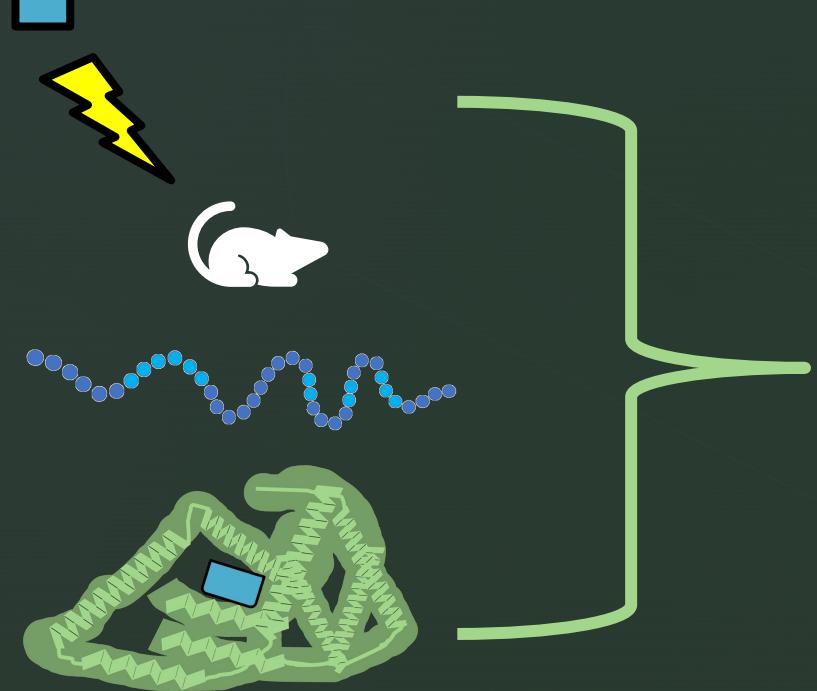
seqapass.epa.gov/seqapass/



Gather Lines of Evidence Toward Protein Conservation



SeqAPASS Predicts Likelihood of Similar Susceptibility based on Sequence Conservation:



yes

	yes
	no
	yes
	no

Line(s) of evidence indicate

- The protein is conserved
- The protein is NOT conserved

Focus on Rapid Data Interpretation

►

Data Visualization
Summary Reports
Customizable
Transparency

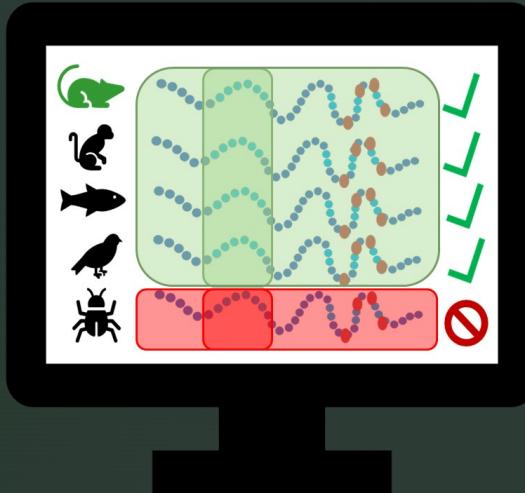
SeqAPASS Results: Tables

Flexible Analysis Based On Available Data

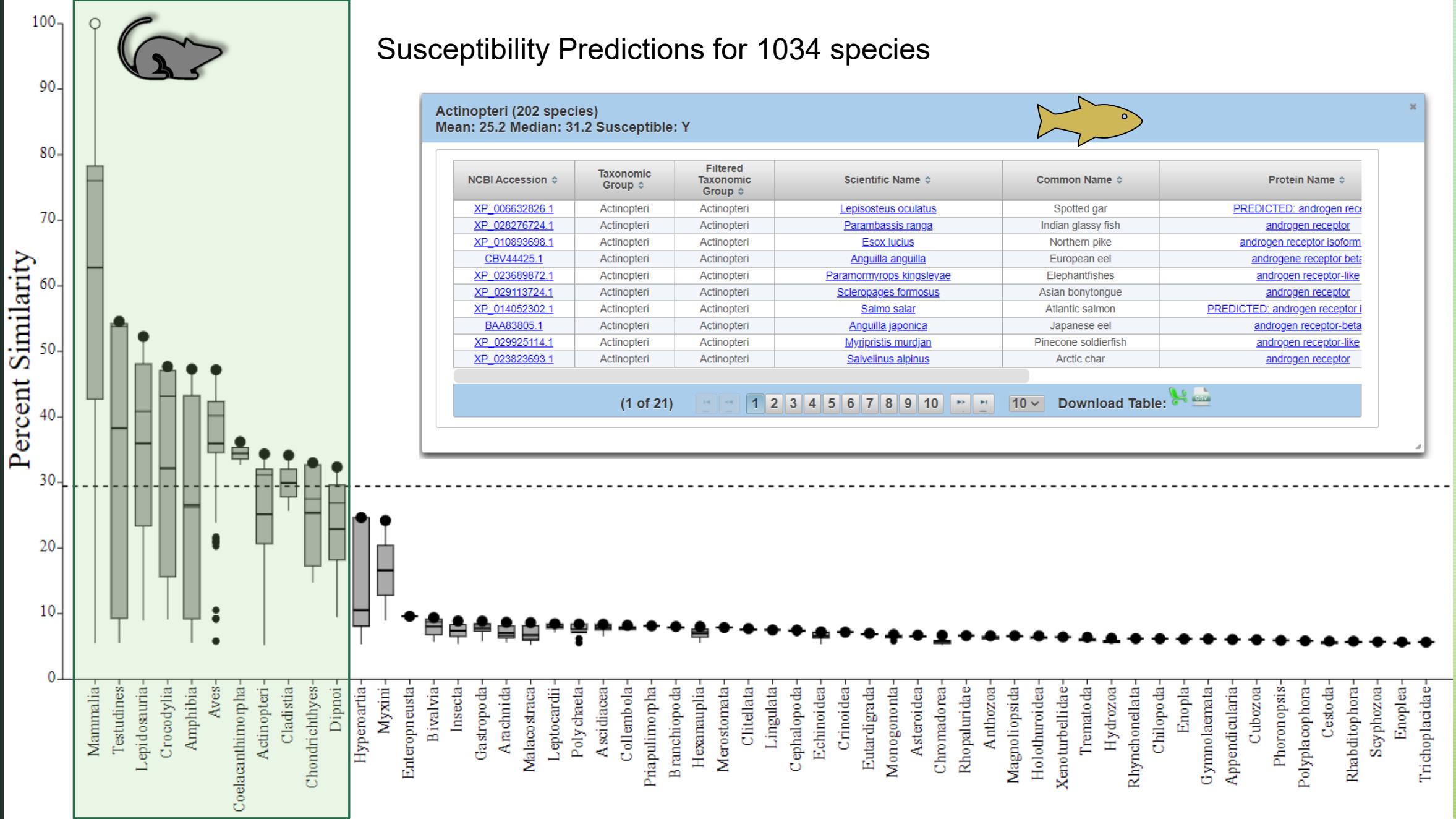
Level 1 Primary Amino Acid Sequence Alignments

Level 2 Conserved Functional Domain Alignments

Level 3 Critical (Close Contact) Amino Acid Conservation



A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	
1	Data Version	NCBI Accession	Protein Count	Species Tax ID	Taxonomic Filtered	Ta: Scientific Name	Common Name	Protein Name	BLASTp Bi	Ortholog	Ortholog Coun	Cut-off	Percent Si	Susceptibilit	Analysis Complete	Eukaryote	ECOTOX	
2	5	P15207.1	149629	10116	Mammalia	Mammalia	Rattus norvegicus	Norway rat	RecName: Full=Andro	1862.43	Y	223	29.45	100	Y	2020 08 27 09:15:52	Y	Explore in ECOTOX
3	5	XP_032745817.1	36127	10117	Mammalia	Mammalia	Rattus rattus	Black rat	LOW QUALITY PROTEI	1826.22	N	223	29.45	98.06	Y	2020 08 27 09:15:52	Y	Explore in ECOTOX
4	5	XP_034341416.1	41654	61156	Mammalia	Mammalia	Arvicantis niloticus	African grass rat	androgen receptor	1812.74	N	223	29.45	97.33	Y	2020 08 27 09:15:52	Y	Explore in ECOTOX
5	5	XP_021043964.1	42343	10093	Mammalia	Mammalia	Mus pahari	Shrew mouse	androgen receptor	1810.42	N	223	29.45	97.21	Y	2020 08 27 09:15:52	Y	Explore in ECOTOX
6	5	AAA37234.1	2813	10092	Mammalia	Mammalia	Mus musculus domesticus	Western European house mouse	androgen receptor	1808.11	N	223	29.45	97.08	Y	2020 08 27 09:15:52	Y	Explore in ECOTOX
7	5	AAB19916.1	1375	10095	Mammalia	Mammalia	Mus sp.	Mice	AR	1808.11	N	223	29.45	97.08	Y	2020 08 27 09:15:52	Y	Explore in ECOTOX
8	5	NP_038504.1	307398	10090	Mammalia	Mammalia	Mus musculus	House mouse	androgen receptor	1808.11	N	223	29.45	97.08	Y	2020 08 27 09:15:52	Y	Explore in ECOTOX
9	5	XP_028625865.1	38191	491861	Mammalia	Mammalia	Grammomys surdaster	African thicket rats	androgen receptor	1801.95	N	223	29.45	96.75	Y	2020 08 27 09:15:52	Y	Explore in ECOTOX
10	5	XP_005081209.1	38160	10036	Mammalia	Mammalia	Mesocricetus auratus	Golden hamster	androgen receptor	1797.33	N	223	29.45	96.5	Y	2020 08 27 09:15:52	Y	Explore in ECOTOX
11	5	XP_027287560.1	162681	10029	Mammalia	Mammalia	Cricetulus griseus	Chinese hamster	androgen receptor is	1796.56	N	223	29.45	96.46	Y	2020 08 27 09:15:52	Y	Explore in ECOTOX
12	5	XP_021009144.1	47700	10089	Mammalia	Mammalia	Mus caroli	Ryukyu mouse	androgen receptor	1795.4	N	223	29.45	96.4	Y	2020 08 27 09:15:52	Y	Explore in ECOTOX
13	5	XP_028739721.1	42166	10041	Mammalia	Mammalia	Peromyscus leucopus	White-footed mouse	androgen receptor	1780.38	N	223	29.45	95.59	Y	2020 08 27 09:15:52	Y	Explore in ECOTOX
14	5	XP_006981237.1	45652	230844	Mammalia	Mammalia	Peromyscus maniculatus baird	Prairie deer mouse	PREDICTED: androge	1775.37	N	223	29.45	95.33	Y	2020 08 27 09:15:52	Y	Explore in ECOTOX
15	5	XP_026640574.1	37992	79684	Mammalia	Mammalia	Microtus ochrogaster	Prairie vole	androgen receptor is	1574.3	N	223	29.45	84.53	Y	2020 08 27 09:15:52	Y	Explore in ECOTOX
16	5	XP_008842588.1	49227	1026970	Mammalia	Mammalia	Nannospalax galili	Upper Galilee mountains blind mole	androgen receptor	1546.95	N	223	29.45	83.06	Y	2020 08 27 09:15:52	Y	Explore in ECOTOX
17	5	XP_004416958.1	31381	9708	Mammalia	Mammalia	Odobenus rosmarus divergens	Pacific walrus	PREDICTED: androge	1499.18	N	223	29.45	80.5	Y	2020 08 27 09:15:52	Y	Explore in ECOTOX
18	5	BCD56309.1	67524	9615	Mammalia	Mammalia	Canis lupus familiaris	Dog	canine androgen rece	1491.48	N	223	29.45	80.08	Y	2020 08 27 09:15:52	Y	Explore in ECOTOX
19	5	XP_025321850.1	62990	286419	Mammalia	Mammalia	Canis lupus dingo	Dingo	androgen receptor	1490.32	N	223	29.45	80.02	Y	2020 08 27 09:15:52	Y	Explore in ECOTOX
20	5	XP_012499360.1	28331	379532	Mammalia	Mammalia	Propithecus coquereli	Coquerel's sifaka	PREDICTED: androge	1490.32	N	223	29.45	80.02	Y	2020 08 27 09:15:52	Y	Explore in ECOTOX
21	5	XP_027464601.1	59271	9704	Mammalia	Mammalia	Zalophus californianus	California sea lion	androgen receptor	1488.01	N	223	29.45	79.9	Y	2020 08 27 09:15:52	Y	Explore in ECOTOX



SeqAPASS L1 and L2 Results: Visualization



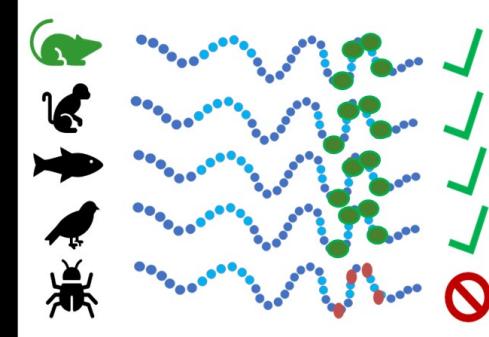
SeqAPASS L3 Results: Tables

Flexible Analysis Based On Available Data

Level 1 Primary Amino Acid Sequence Alignments

Level 2 Conserved Functional Domain Alignments

Level 3 Critical (Close Contact) Amino Acid Conservation



C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	
1	NCBI Acce	Protein C	Species T	Taxonomic C	Scientific Common	Protein N	Analysis	Similar Su	Position 1	Amino Ac	Direct Ma	Side Chair	Side Chair	MW 1	MW Matc	Total Mat	Position 2	Amino Ac	Direct Ma	Side Chair	Side Chair	MW 2	MW Matc	Total Mat	
2	P10275.3	1797018	9606	Mammalia	Homo sapiens	human	RecName: 2020 11 Y		706	N	Y	Amidic	Y	132.119	Y	Y	712	Q	Y	Amidic	Y	146.146	Y	Y	
3	P15207.1	149629	10116	Mammalia	Rattus norvegicus	Norway rat	RecName: 2020 11 Y		688	N	Y	Amidic	Y	132.119	Y	Y	694	Q	Y	Amidic	Y	146.146	Y	Y	
4	XP_03434	41654	61156	Mammalia	Arvicomys	African ground	androgen	2020 11 Y		687	N	Y	Amidic	Y	132.119	Y	Y	693	Q	Y	Amidic	Y	146.146	Y	Y
5	XP_02104	42343	10093	Mammalia	Mus musculus	Shrew mouse	androgen	2020 11 Y		683	N	Y	Amidic	Y	132.119	Y	Y	689	Q	Y	Amidic	Y	146.146	Y	Y
6	AAA3723	2813	10092	Mammalia	Mus musculus	Western	androgen	2020 11 Y		685	N	Y	Amidic	Y	132.119	Y	Y	691	Q	Y	Amidic	Y	146.146	Y	Y
7	AAB1991	1375	10095	Mammalia	Mus sp.	Mice	AR	2020 11 Y		685	N	Y	Amidic	Y	132.119	Y	Y	691	Q	Y	Amidic	Y	146.146	Y	Y
8	NP_03850	307398	10090	Mammalia	Mus musculus	House mouse	androgen	2020 11 Y		685	N	Y	Amidic	Y	132.119	Y	Y	691	Q	Y	Amidic	Y	146.146	Y	Y
9	XP_02862	38191	491861	Mammalia	Grammonotus	African thomomys	androgen	2020 11 Y		685	N	Y	Amidic	Y	132.119	Y	Y	691	Q	Y	Amidic	Y	146.146	Y	Y
10	XP_00508	38160	10036	Mammalia	Mesocricetus	Golden hamster	androgen	2020 11 Y		686	N	Y	Amidic	Y	132.119	Y	Y	692	Q	Y	Amidic	Y	146.146	Y	Y
11	XP_02728	162681	10029	Mammalia	Cricetulus	Chinese hamster	androgen	2020 11 Y		695	N	Y	Amidic	Y	132.119	Y	Y	701	Q	Y	Amidic	Y	146.146	Y	Y
12	XP_02100	47700	10089	Mammalia	Mus carolinensis	Ryukyu mouse	androgen	2020 11 Y		680	N	Y	Amidic	Y	132.119	Y	Y	686	Q	Y	Amidic	Y	146.146	Y	Y
13	XP_02873	42166	10041	Mammalia	Peromyscus	White-footed mouse	androgen	2020 11 Y		683	N	Y	Amidic	Y	132.119	Y	Y	689	Q	Y	Amidic	Y	146.146	Y	Y
14	XP_00698	45652	230844	Mammalia	Peromyscus	Prairie deer mouse	PREDICTED	2020 11 Y		679	N	Y	Amidic	Y	132.119	Y	Y	685	Q	Y	Amidic	Y	146.146	Y	Y
15	XP_02664	37992	79684	Mammalia	Microtus	Prairie vole	androgen	2020 11 Y		702	N	Y	Amidic	Y	132.119	Y	Y	708	Q	Y	Amidic	Y	146.146	Y	Y
16	XP_00884	49227	1026970	Mammalia	Nannospalax	Upper Galilee	androgen	2020 11 Y		689	N	Y	Amidic	Y	132.119	Y	Y	695	Q	Y	Amidic	Y	146.146	Y	Y
17	XP_00441	31381	9708	Mammalia	Odobenus	Pacific walrus	PREDICTED	2020 11 Y		672	N	Y	Amidic	Y	132.119	Y	Y	678	Q	Y	Amidic	Y	146.146	Y	Y
18	BCD5630	67524	9615	Mammalia	Canis lupus	Dog	canine androgen	2020 11 Y		693	N	Y	Amidic	Y	132.119	Y	Y	699	Q	Y	Amidic	Y	146.146	Y	Y
19	XP_02532	62990	286419	Mammalia	Canis lupus	Dingo	androgen	2020 11 Y		696	N	Y	Amidic	Y	132.119	Y	Y	702	Q	Y	Amidic	Y	146.146	Y	Y
20	XP_01245	28331	379532	Mammalia	Propithecus	Coquerel's sifaka	PREDICTED	2020 11 Y		672	N	Y	Amidic	Y	132.119	Y	Y	678	Q	Y	Amidic	Y	146.146	Y	Y
21	XP_02746	59271	9704	Mammalia	Zalophus	California sea lion	androgen	2020 11 Y		673	N	Y	Amidic	Y	132.119	Y	Y	679	Q	Y	Amidic	Y	146.146	Y	Y
22	XP_02584	38428	9627	Mammalia	Vulpes vulpes	Red fox	androgen	2020 11 Y		686	N	Y	Amidic	Y	132.119	Y	Y	692	Q	Y	Amidic	Y	146.146	Y	Y

SeqAPASS L3 Set Up Alignment of Amino Acids

Sequence Alignment to Predict Across Species Susceptibility (SeqAPASS)

Home Request SeqAPASS Run SeqAPASS Run Status View SeqAPASS Reports Settings

SeqAPASS Reports

Version 5.0

Log

Main Level 1 Level 3 DS Report

Level 3 Template Protein Information

Individual amino acid residue(s) aligned with template sequence. Use the main button to go back to the SeqAPASS Reports list.

SeqAPASS ID: 1717

Query Accession: [P15207.1](#) EXIT

Ortholog Count: 223

Protein and Taxonomy Data: 06/08/202

BLAST Version: 2.10.0

Cobalt Data: 07/09/2010

Cobalt Version: 2.1.0

Software Version: 4.1

Level 3 Run Name: Combined: Mammalia, Testudines, Actinopteri

Template Species: Homo sapiens

Template Protein: [P10275.3] RecName: Full=Androgen receptor; AltName: Full=Dihydrotestosterone receptor; AltName: Full=Nuclear receptor subfamily 3 group C member 4

Query Residues: 706N, 712Q, 753R, 878T

[NCBI COBALT](#) EXIT

Show Amino Acid Info...

Select Amino Acid Residues

1M
2E
3V
4Q
5L
6G
7L
8G
9R
10V

706N
712Q
753R
878T

Enter Amino Acid Residue Positions

706,712,753,878

Copy to Residue List

Update Report

Visualization

i +

SeqAPASS L3 Accessing the HeatMap Visualization

Sequence Alignment to Predict Across Species Susceptibility (SeqAPASS)

Level Three Visualization - Primary Report

Level 1 Query Protein Information

SeqAPASS ID: 1717
Query Species: Rattus norvegicus
Ortholog Count: 223

Query Accession: [P15207.1](#)

Select to Open Information or Data Visualization



i

Info

Visualization Info

The following data visualization is available for Level 3 data:

- **HeatMap** - Heat Maps depicting SeqAPASS data illustrating the comparison between the template species and the user selected species allows for a summary of species' protein sequence comparisons.
 - The similarity between species compared to the template species and the user selected amino acids is denoted with either a (Y)-yes, or (N)-no. The color green is associated with "yes" and red is associated with "no".
 - Similarities between amino acids are determined by comparing the species specific amino acids against the template species. The amino acids can be either a Total Match, Partial Match, or Not a Match.
 - The user has the ability to add or remove five settings (Susceptibility Prediction, Susceptibility Prediction Text, Alignment Prediction Heat Map, Amino Acid, and Amino Acid Position) to allow for a customizable Heat Map.
 - Selecting one of the Optional Selections will highlight the species names that are associated with that selection.

SeqAPASS L3 Customize the HeatMap Visualization

Heat Map

Controls

Report Options

Report Type

- Simple
- Full

Species Name Type

- Common Name
- Scientific Name

Optional Selections

- Ortholog Candidates
- Threatened Species
- Endangered Species
- Common Model Organisms

Heat Map Settings

- Susceptibility Prediction Heat Map
- Susceptibility Prediction Text
- Alignment Prediction Heat Map
- Amino Acid
- Amino Acid Position

Level 3 Taxonomic Groups

Mammalia
Testudines

Order Level 3 Taxonomic Groups

Actinopteri

Download Heat Map...

Push Level 3 Heat Map To DS Report

SeqAPASS L3 View the HeatMap Visualization

Match	Susceptible Yes
Not a Match	Susceptible No

Common Name	Similar Susceptibility	Amino Acid 1	Side Chain 1	MW 1	Total Match 1	Amino Acid 2	Side Chain 2	MW 2	Total Match 2	Amino Acid 3	Side Chain 3
Norway rat	Y	688N	Amidic	132.119	Y	694Q	Amidic	146.146	Y	735R	Basic
Spotted gar	Y	644N	Amidic	132.119	Y	650Q	Amidic	146.146	Y	691R	Basic
Indian glassy fish	Y	544N	Amidic	132.119	Y	550Q	Amidic	146.146	Y	591R	Basic
Northern pike	Y	636N	Amidic	132.119	Y	642Q	Amidic	146.146	Y	683R	Basic
European eel	Y	584N	Amidic	132.119	Y	590Q	Amidic	146.146	Y	631R	Basic
Elephantfishes	Y	630N	Amidic	132.119	Y	636Q	Amidic	146.146	Y	677R	Basic
Asian bonytongue	Y	614N	Amidic	132.119	Y	620Q	Amidic	146.146	Y	661R	Basic
Atlantic salmon	Y	640N	Amidic	132.119	Y	646Q	Amidic	146.146	Y	687R	Basic
Japanese eel	Y	584N	Amidic	132.119	Y	590Q	Amidic	146.146	Y	631R	Basic
Pinecone soldierfish	Y	564N	Amidic	132.119	Y	570Q	Amidic	146.146	Y	611R	Basic
Arctic char	Y	640N	Amidic	132.119	Y	646Q	Amidic	146.146	Y	687R	Basic
Chinook salmon	Y	641N	Amidic	132.119	Y	647Q	Amidic	146.146	Y	688R	Basic
Rainbow trout	Y	640N	Amidic	132.119	Y	646Q	Amidic	146.146	Y	687R	Basic
Sockeye salmon	Y	640N	Amidic	132.119	Y	646Q	Amidic	146.146	Y	687R	Basic
Coho salmon	Y	640N	Amidic	132.119	Y	646Q	Amidic	146.146	Y	687R	Basic
River trout	Y	640N	Amidic	132.119	Y	646Q	Amidic	146.146	Y	687R	Basic
Silver crucian carp	Y	639N	Amidic	132.119	Y	645Q	Amidic	146.146	Y	686R	Basic
Milkfish	Y	654N	Amidic	132.119	Y	660Q	Amidic	146.146	Y	701R	Basic
Plateau loaches	Y	651N	Amidic	132.119	Y	657Q	Amidic	146.146	Y	698R	Basic
Sterlet	Y	628N	Amidic	132.119	Y	634Q	Amidic	146.146	Y	675R	Basic
Denticle herring	Y	516N	Amidic	132.119	Y	522Q	Amidic	146.146	Y	563R	Basic
European seabass	Y	554N	Amidic	132.119	Y	560Q	Amidic	146.146	Y	601R	Basic
Pengze crucian carp	Y	623N	Amidic	132.119	Y	629Q	Amidic	146.146	Y	670R	Basic
Large yellow croaker	Y	537N	Amidic	132.119	Y	543Q	Amidic	146.146	Y	584R	Basic
Atlantic herring	Y	628N	Amidic	132.119	Y	634H	Basic	155.156	Y	675R	Basic
Fathead minnow	Y	626N	Amidic	132.119	Y	632Q	Amidic	146.146	Y	673R	Basic
Spiny chromis	Y	514N	Amidic	132.119	Y	520Q	Amidic	146.146	Y	561R	Basic

Rapidly identify differences in the amino acid comparisons

SeqAPASS L3 View Specialty Groups in the HeatMap Visualization

Legend:

- Match (Blue)
- Not a Match (Yellow)
- Susceptible Yes (Green)
- Susceptible No (Red)
- Endangered Species (Purple)

Highlight Endangered Species

Common Name	Similar Susceptibility	Amino Acid 1	Side Chain 1	MW 1	Total Match 1	Amino Acid
Norway rat	Y	688N	Amidic	132.119	Y	694Q
Spotted gar	Y	644N	Amidic	132.119	Y	650Q
Indian glassy fish	Y	544N	Amidic	132.119	Y	550Q
Northern pike	Y	636N	Amidic	132.119	Y	642Q
European eel	Y	584N	Amidic	132.119	Y	590Q
Elephantfishes	Y	630N	Amidic	132.119	Y	636Q
Asian bonytongue	Y	614N	Amidic	132.119	Y	620Q
Atlantic salmon	Y	640N	Amidic	132.119	Y	646Q
Japanese eel	Y	524N	Amidic	132.119	Y	530Q
Pinecone soldierfish	Y	NCBI Accession	XP_014052302.1			
Arctic char		Protein Name	PREDICTED: androgen receptor isoform X1			
Chinook salmon		Scientific Name	Salmo salar			
Rainbow trout		Taxonomic Group	Actinopteri			
Sockeye salmon		Ortholog Candidate				
Coho salmon		Endangered Species				
River trout		Common Model Organism				
Silver crucian carp						

Hover over feature for more information

Check out Level 3 Visualization new to SeqAPASS
(<https://seqapass.epa.gov/seqapass/>)

Common Name	Similar Susceptibility	Amino Acid 1	Side Chain 1	MW 1	Total Match 1	Amino Acid 2	Side Chain 2	MW 2	Total Match 2	Amino Acid 3	Side Chain 3	MW 3	Total Match 3	Amino Acid 4	Side Chain 4	MW 4	Total Match 4
Norway rat	Y	688N	Amidic	132.119	Y	694Q	Amidic	146.146	Y	735R	Basic	174.203	Y	860T	Hydroxylc	119.119	Y
Abingdon island giant tortoise	Y	576N	Amidic	132.119	Y	582Q	Amidic	146.146	Y	623R	Basic	174.203	Y	748T	Hydroxylc	119.119	Y
Goode's thornscrub tortoise	Y	576N	Amidic	132.119	Y	582Q	Amidic	146.146	Y	623R	Basic	174.203	Y	748T	Hydroxylc	119.119	Y
Terrapins	Y	576N	Amidic	132.119	Y	582Q	Amidic	146.146	Y	623R	Basic	174.203	Y	748T	Hydroxylc	119.119	Y
Western painted turtle	Y	576N	Amidic	132.119	Y	582Q	Amidic	146.146	Y	623R	Basic	174.203	Y	748T	Hydroxylc	119.119	Y
Three-toed box turtle	Y	576N	Amidic	132.119	Y	582Q	Amidic	146.146	Y	623R	Basic	174.203	Y	748T	Hydroxylc	119.119	Y
Painted turtle	Y	341T	Hydroxylc	119.119	Y	347E	Acidic	147.131	Y	388R	Basic	174.203	Y	519L	Aliphatic	131.175	Y
Loggerhead turtle	N	--	-	-	N	--	-	-	N	--	-	-	N	--	-	-	N

From



to



Main

Level 1

Level 2

Level 3

DS Report

Decision Summary Report

Level 1 Report

Select Taxonomic Groups (CLASS)	
Select All	Taxonomic Group
<input checked="" type="checkbox"/>	Mammalia
<input checked="" type="checkbox"/>	Testudines
<input checked="" type="checkbox"/>	Lepidosauria
<input checked="" type="checkbox"/>	Crocodylia
<input checked="" type="checkbox"/>	Amphibia
<input checked="" type="checkbox"/>	Aves
<input checked="" type="checkbox"/>	Coelacanthimorpha
<input checked="" type="checkbox"/>	Actinopteri
<input checked="" type="checkbox"/>	Cladista
<input checked="" type="checkbox"/>	Chondrichthyes
<input checked="" type="checkbox"/>	Dipnoi
<input checked="" type="checkbox"/>	Hyperoartia

Select Species	
Select All	Species
<input checked="" type="checkbox"/>	Norway rat
<input checked="" type="checkbox"/>	Black rat
<input checked="" type="checkbox"/>	African grass rat
<input checked="" type="checkbox"/>	Shrew mouse
<input checked="" type="checkbox"/>	Mice
<input checked="" type="checkbox"/>	House mouse
<input checked="" type="checkbox"/>	Western European house mouse
<input checked="" type="checkbox"/>	African thicket rats
<input checked="" type="checkbox"/>	Golden hamster
<input checked="" type="checkbox"/>	Chinese hamster
<input checked="" type="checkbox"/>	Ryukyu mouse
<input checked="" type="checkbox"/>	White-footed mouse

Level 1 Info

Level 1 Query Protein Information

SeqAPASS ID: 1717
 Query Species: Rattus norvegicus
 Query Protein: RecName: Full=Androgen receptor; AltName: Full=Dihydrotestosterone receptor; AltName: Full=Nuclear receptor subfamily 3 group C member 4
 Query Accession: P15207.1 [EXIT](#)
 Ortholog Count: 223
 Protein and Taxonomy Data: 06/08/2020
 BLAST Version: 2.10.0
 Software Version: 4.1

Report Settings

Report Type: Primary
 E-Value: 0.01
 Sorted By Taxonomic Group: CLASS
 Common Domains: 1
 Species Read-Across: Y
 Cut-off %: 29.45
 Show Only Eukaryotes: Y

Optional Components [i](#)

Component	Add to Report
Level 1 Info	<input checked="" type="checkbox"/>
Level 1 Visualization	<input checked="" type="checkbox"/>

Level 2 Report

Select Level 2 Domains

Domain

(655) cd07073, NR_LBD_AR, Ligand binding domain of the nuclear receptor androgen receptor, ligand activated transcription regulator

Optional Components		
Add To Report Table	Add Info to Report	Add Visualization to Report
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Level 3 Report

Level 3 Info

SeqAPASS ID: 1717

Template Species: Homo sapiens

Template Protein: [P10275.3] RecName: Full=Androgen receptor; AltName: Full=Dihydrotestosterone receptor; AltName: Full=Nuclear receptor subfamily 3 group C member 4

Protein and Taxonomy Data: 06/08/2020

BLAST Version: 2.10.0

Software Version: 4.1

Selected Amino Acids

706N, 712Q, 753R, 878T

Optional Components [i](#)

Component	Add to Report
Level 3 Report	<input checked="" type="checkbox"/>
Level 3 Info	<input checked="" type="checkbox"/>
Level 3 Visualization	<input checked="" type="checkbox"/>

SeqAPASS Results: Decision Summary Report

Final Decision Summary Report									i
Data Version	NCBI Accession	Filtered Taxonomic Group	Species	Protein	Level 1 Susceptible (Y/N)	(655) cd07073, NR_LBD_AR, Ligand binding domain of the nuclear receptor androgen receptor, ligand activated transcription regulator	Level 3 Template	Level 3 Amino Acids (Y/N)	
5	P15207.1	Mammalia	Norway rat	RecName: Full=Androgen receptor; AltName: Full=Dihydrotestosterone receptor; AltName: Full=Nuclear receptor subfamily 3 group C member 4	Y	Y	Homo sapiens	Y	
5	XP_032745817.1	Mammalia	Black rat	LOW QUALITY PROTEIN: androgen receptor	Y	Y	Homo sapiens	NA	
5	XP_034341416.1	Mammalia	African grass rat	androgen receptor	Y	Y	Homo sapiens	Y	
5	XP_021043964.1	Mammalia	Shrew mouse	androgen receptor	Y	Y	Homo sapiens	Y	
5	AAB19916.1	Mammalia	Mice	AR	Y	Y	Homo sapiens	Y	
5	NP_038504.1	Mammalia	House mouse	androgen receptor	Y	Y	Homo sapiens	Y	
5	AAA37234.1	Mammalia	Western European house mouse	androgen receptor	Y	Y	Homo sapiens	Y	
5	XP_028625865.1	Mammalia	African thicket rats	androgen receptor	Y	Y	Homo sapiens	Y	
5	XP_005081209.1	Mammalia	Golden hamster	androgen receptor	Y	Y	Homo sapiens	Y	
5	XP_027287560.1	Mammalia	Chinese hamster	androgen receptor isoform X3	Y	Y	Homo sapiens	Y	
(1 of 104) 1 2 3 4 5 6 7 8 9 10 > 10 Download Table: 									
Download DS Report									
Top of Page									

Decision [Summary](#) Report

Evolution of the SeqAPASS tool

- V5.0 (2020): Develop visualization (Level 3), Develop Decision Summary Report
- v4.0 (2019): Improve visualization, user guidance, summary tables, interoperability
- v3.0 (2018): Develop visualization (Level 1 & 2), automate Level 3 Susceptibility Predictions
- v2.0 (2017): develop Level 3 Susceptibility Predictions
- v1.0 (2016): Develop interface Level 1 & 2 and integrate essential functionality



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SeqAPASS v5.0



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<https://seqapass.epa.gov/seqapass/>