

## 1. Gen SHANK3.

Jest to gen, który może być odpowiedzialny za autyzm.

## 2.

Gatunki, u których występuje ten gen:

- *Homo sapiens* – Człowiek rozumny
- *Pan troglodytes* – Szympanś zwyczajny
- *Canis lupus familiaris* – pies domowy
- *Bos taurus* – Bydło
- *Mus musculus* – Mysz domowa
- *Rattus norvegicus* – Szczur wędrowny
- *Xenopus (Silurana) tropicalis* – gatunek płaza bezogonowego z rodziny grzbietorodowatych

Xenopus	MRERNQSPNGCERDLREMQSLRSSPSAHVVSVPVPELPERPGPPPSPPQGPPRDPGAPG	60
Pan	-----	0
Canis	-----	0
Bos	-----	0
Homo	-----	0
Mus	-----	0
Rattus	-----	0
Xenopus	TPCLSGGDPETPESESQSPSRGRDTPTRLSPNFRYPDSGREPQGTCLKAQAGDISAQI	120
Pan	-----	0
Canis	-----	0
Bos	-----	0
Homo	-----	0
Mus	-----	0
Rattus	-----	0
Xenopus	KERELSSPDRNHIEDRSIPIRDYPTFGGKDPARDRGSPVSDRVSVRSASDLIRIDRE	180
Pan	-----	0
Canis	-----MAPGASGLRRAS--RPQVPPGARP--RRGPTRGPRRR	36
Bos	-----	0
Homo	-----	0
Mus	-----	0
Rattus	-----	0
Xenopus	LTVRDRDPHGSDDPPGRMEETAGNAVIIRIGIPDLQQTCLRLNDAPVWAAKQ----	236
Pan	-----MDGPGASAVVVRVGIPDLQQTCLRLDPAAPVWAAKQ----	37
Canis	----YASPRLASAGSRLLRRPPGGRTIRPQPPGLPAGFRGPLTPAPGGRGPDRTPG	92
Bos	-----HDRAPLQKCLRLDPAAPVWAAKQ----	23
Homo	-----MDGPGASAVVVRVGIPDLQQTCLRLDPAAPVWAAKQ----	37
Mus	-----MDGPGASAVVVRVGIPDLQQTCLRLDPAAPVWAAKQ----	37
Rattus	-----MDGPGASAVVVRVGIPDLQQTCLRLDPAAPVWAAKQ----	37
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Xenopus	-----RILCTLNHSLKQDLNYGLFQPA-----FNGRAGKFLDEE-----RLL	273
Pan	-----RVLCAHNSLQDALNYGLFQPP-----SRGRAGKFLDEE-----RLL	74
Canis	LGLEVGGRSHMTLTPGA-RAAGRGQYRAEQGRDGTADGGGPAGASASVETSSAPSPKPV	151
Bos	-----RVLCAHNSLQDALNYGLFQPP-----SRGRAGKFLDEE-----RLL	60
Homo	-----RVLCAHNSLQDALNYGLFQPP-----SRGRAGKFLDEE-----RLL	74
Mus	-----RVLCAHNSLQDALNYGLFQPP-----SRGRAGKFLDEE-----RLL	74
Rattus	-----RVLCAHNSLQDALNYGLFQPP-----SRGRAGKFLDEE-----RLL	74
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Xenopus	REYPPSLATPVPPYLEFRYKRRVYTQSLLDDKQFAKLHTKGNLKKFMEYIQLQNIKVTRL	333
Pan	QEYPPNLDTPLPYLEFRYKRRVYAQNLIIDDKQFAKLHTKANLKKFMDYVQLHSTDQVARL	134
Canis	LGRAPI-ILSSLRWVTLRRSEP-W----CSADDPGWVFQANLKKFMDYVQLHSTDQVARL	204
Bos	QEYPPNLDTPLPYLEFRYKRRVYAQNLIIDDKQFAKLHTKANLKKFMEYVQLHSTEKVARL	120
Homo	QEYPPNLDTPLPYLEFRYKRRVYAQNLIIDDKQFAKLHTKANLKKFMDYVQLHSTDQVARL	134
Mus	QDYPPNLDTPLPYLEFRYKRRVYAQNLIIDDKQFAKLHTKANLKKFMDYVQLHSTDQVARL	134
Rattus	QDYPPNLDTPLPYLEFRYKRRVYAQNLIIDDKQFAKLHTKANLKKFMDYVQLHSTDQVARL	134
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Xenopus	LERGLDPNYQDPDTGECPLTASQLEGGADLVKILRNGGAHLDFRTREGLTALHKAVHYR	393
Pan	LDKGLDPNFHDPDSGECPLSLAAQLDNATDLLKVLKNGGLRDLDFRSDGVSLKRGATRQR	194
Canis	LDKGLDPNFHDPDSGECPLSLAAQLDNATDLLKVLKNGGAHLDFRTDGLTAVHCATRRR	264
Bos	LDKGLDPNFHDPDSGECPLSLAAQLDDATDLLKVLKNGGAHLDFRTDGLTAVHCATRRR	180
Homo	LDKGLDPNFHDPDSGECPLSLAAQLDNATDLLKVLKNGGAHLDFRTDGLTAVHCATRRR	194
Mus	LDKGLDPNFHDPDSGECPLSLAAQLDNATDLLKVLKNGGAHLDFRTDGLTAVHCATRRR	194
Rattus	LDKGLDPNFHDPDSGECPLSLAAQLDNATDLLKVLKNGGAHLDFRTDGLTAVHCATRRR	194
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Xenopus	NHAVLMTLLDLGASPDYKDSRGLTPLYHSAMVGGDPYCCLELLLDYASLGCEDENGNQEI	453
Pan	NAAA	198
Canis	NAAALTTLLDLGASPDYKDSRGLTPLYHSALGGGDALCCELLLDHHAQLGTTDENGWQEI	324
Bos	NAAALTTLLDLGASPDYKDSRGLTPLYHSALGGGDALCCELLLDHHAQLGTTDENGWQEV	240
Homo	NAAALTTLLDLGASPDYKDSRGLTPLYHSALGGGDALCCELLLDHHAQLGTTDENGWQEI	254
Mus	NAGALTTLLDLGASPDYKDSRGLTPLYHSALGGGDALCCELLLDHHAQLGTTDENGWQEI	254
Rattus	NAGALTTLLDLGASPDYKDSRGLTPLYHSALGGGDALCCELLLDHHAQLGTTDENGWQEI	254
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Xenopus	HQACRFYGHVQHLEHLLFYGADMRAQNASGNSALHLCALYNQESCARVLLFRGASKEIRNF	513
Pan	-----	198
Canis	HQACRFYGHVQHLEHLLFYGADMGAQNASGNTALHICALYNQESCARVLLFRGANKDVRNY	384
Bos	HQACRFYGHVQHLEHLLFYGADMGAQNASGNTALHICALYNQESCARVLLFRGANKDVRNY	300
Homo	HQACRFYGHVQHLEHLLFYGADMGAQNASGNTALHICALYNQESCARVLLFRGANKDVRNY	314
Mus	HQACRFYGHVQHLEHLLFYGANMGAQNASGNTALHICALYNQESCARVLLFRGANKDVRNY	314
Rattus	HOACRFYGHVQHLEHLLFYGANMGAQNASGNTALHICALYNQESCARVLLFRGANKDVRNY	314

Xenopus	NNQTAFFQVAIIAGNFELAEVIKTHKESDIVPFRETSPSYAKRRRLAGPSGLASPRPLQRS	573
Pan	-----LTVIPFRETPSYAKRRRLAGPSGLASPRPLQRS	232
Canis	NSQTAFQVAIIAGNFELAEVIKTHKSDVVPFRETSPSYAKRRRLAGPSGLASPRPLQRS	444
Bos	NSQTAFQVAIIAGNFELAEVIKTHKSDVVPFRETSPSYAKRRRLAGPSGLASPRPLQRS	368
Homo	NSQTAFQVAIIAGNFELAEVIKTHKSDVVPFRETSPSYAKRRRLAGPSGLASPRPLQRS	374
Mus	NSQTAFQVAIIAGNFELAEVIKTHKSDVVPFRETSPSYAKRRRLAGPSGLASPRPLQRS	374
Rattus	NSQTAFQVAIIAGNFELAEVIKTHKSDVVPFRETSPSYAKRRRLAGPSGLASPRPLQRS *:*****:*:*:*      *:*** ****	374
Xenopus	SDNNLSNDG-AHYSVPVSLRGLPQLLSQGPEVSGIAA-VGD5--LASTTSSRSTHSRS	629
Pan	SDINLKGEAQPAASPGPSLRSLPHQLLLQLRQEKKDRDRDADQESNISGPLAGRASQSXI	292
Canis	SDINLKGEVQPAASPGPSLRSLPHQLLLQLRQEKKDRDRDGQENDIGGPTAGRGQSXI	584
Bos	SDINLKGEVQPAASPGPSLRSLPHQLLLQLRQEKKDRDRDGQQN-DSGPATGRGSQSXI	419
Homo	SDINLKGEAQPAASPGPSLRSLPHQLLLQLRQEKKDRDRDADQESNISGPLAGRAGQSXI	43
Mus	SDINLKGD-QPAASPGPTLSLPHQLLLQLRQEKKDRDRDGELENDISGSPAGRGGHNKI	433
Rattus	SDINLKGD-QPAASPGPTLSLPHQLLLQLRQEKKDRDRDGEQENDISGSPAGRGGHSKI ** *:*,      ** *:*,** *** *      :      .:      *. *:.:	433
Xenopus	-----PSLHRAREERDIDHTHLRRGRKSSPGPLDVIRSTGPRGPKRKLYSAVPGRTFIA	683
Pan	RXEGAGR--PWRGEGGV-----PGFEAHPQPPRPGRPCKRLYSAVPGRKIFIA	337
Canis	RCGGGWGGLLE-----VM-----	517
Bos	RSEAPSDFLSWPASPPGVPALLRRITDPSPAFPASAHRSPPRPGGLSRRKLYSAVPGRKIFIA	479
Homo	SPSGGGGPGPAPG-----PGPAPPAP---PAPPPRGPKRKLYSAVPGRKIFIA	478
Mus	SPSGGGGSGPAPG-----PGPASPAP---PAPPPRGPKRKLYSAVPGRKIFIA	477
Rattus	SPSGGGGSGPAPG-----PGPASPAP---PAPPPRGPKRKLYSAVPGRKIFIA	477
Xenopus	VKSYPQPGGEIQLNRGERVKVLISIEGGGFNEGVSXGRSGWFPADCVEEVQMRQPDP--	741
Pan	VKAHSPQGEIGEIPHRGEAVKVLISIEGGGFNEGTVGKRTGMFPKDCVEEVQMRQPPRVX	397
Canis	--LCPDG-----SLASVPPVLISIEGGGFNEGTVDRTGMFPADCVEEVQMRQYDTR--	566
Bos	VKAHSPQGEIGEIPHRGEAVKVLISIEGGGFNEGTVGKRTGMFPADCVEEVQMRQYDAR--	537
Homo	VKAHSPQGEIGEIPHRGEAVKVLISIEGGGFNEGTVGKRTGMFPADCVEEVQMRQHOTR--	536
Mus	VKAHSPQGEIGEIPHRGEAVKVLISIEGGGFNEGTVGKRTGMFPADCVEEVQMRQYDTR--	535
Rattus	VKAHSPQGEIGEIPHRGEAVKVLISIEGGGFNEGTVGKRTGMFPADCVEEVQMRQYDTR-- *:                ..            *****:*:*:*   *****     *	535
Xenopus	-----	741
Pan	XXXALLATLRRASALGRGRVLPPEARVQPNRNLLPTGPDLLPPPCKIHFLDNWGDRKG	457
Canis	-----	566
Bos	-----	537
Homo	-----	536
Mus	-----	535
Rattus	-----	535
Xenopus	-----	741
Pan	LKVLESAGAGLGRLAGGARQLLELVGAERSWLVEWLEPSAWVRAVEAGGLEATTVHQLP	517
Canis	-----	566
Bos	-----	537
Homo	-----	536
Mus	-----	535
Rattus	-----	535
Xenopus	---QETREDRTKRLFPHYTVGSYDSLTSYSHDYVIQEKVARLQKRLEGFGFVLRGAKAET	798
Pan	ILPSETREDRTKRLFPHYTVGSYDSLTSYSHDYVIDDKVAVLQKRDHEGFGFVLRGAKAET	577
Canis	---HETREDRTKRLFPHYTVGSYDSLTSYSHDYVIDDKVAVLQKRDHEGFGFVLRGAKAET	623
Bos	---HETREDRTKRLFPHYTVGSYDSLTSYSHDYVIDDKVAVLQKRDHEGFGFVLRGAKAET	594
Homo	---PETREDRTKRLFPHYTVGSYDSLTSYSHDYVIDDKVAVLQKRDHEGFGFVLRGAKAET	593
Mus	---HETREDRTKRLFPHYTVGSYDSLTSYSHDYVIDDKVAILQKRDHEGFGFVLRGAKAET	592
Rattus	---HETREDRTKRLFPHYTVGSYDSLTSYSHDYVIDDKVAILQKRDHEGFGFVLRGAKAET *****:;*****:*:*   ***:   *****	592
Xenopus	PIEEFTPTAPFALQYLESDVDVGVAWRAGLRTGDFLIEVNGVNIVKVGHKQVVSLIRQG	858
Pan	PIEEFTPTAPFALQYLESDVDVGVAWRAGLRTGDFLIEVNGVNIVKVGHKQVVALIRQG	637
Canis	PIEEFTPTAPFALQYLESDVDVGVAWRAGLRTGDFLIEVNGVNIVKVGHKQVVALIRQG	683
Bos	PIEEFTPTAPFALQYLESDVDVGVAWRAGLRTGDFLIEVNGVNIVKVGHKQVVALIRQG	742
Homo	PIEEFTPTAPFALQYLESDVDVGVAWRAGLRTGDFLIEVNGVNIVKVGHKQVVALIRQG	653
Mus	PIEEFTPTAPFALQYLESDVDVGVAWRAGLRTGDFLIEVNGVNIVKVGHKQVVGLIRQG	652
Rattus	PIEEFTPTAPFALQYLESDVDVGVAWKAGLRTGDFLIEVNGVNIVKVGHKQVVGLIRQG *****:*:*:*   *****	652
Xenopus	GSHLTMKVSVSRKPPESEEAMRRRAPPPKRAPSTTLTRSKSMATAELEEELRL-----	912
Pan	GNRLVMKVSVTRKPEED-GARRRAPPPKRAPSTTLTRSKSMATAEELASIRRRKGE	696
Canis	GNRLVMKVSVTRKPEED-GARRRAPPPKRAPSTTLTRSKSMATAELEELGEQGNVTG	742
Bos	GNRLVMKVSVTRKPEED-GARRRAPPPKRAPSTTLTRSKSMATAEELASIRRRKGE	713
Homo	GNRLVMKVSVTRKPEED-GARRRAPPPKRAPSTTLTRSKSMATAEELASIRRRKGE	712
Mus	GNRLVMKVSVTRKPEED-GARRRAPPPKRAPSTTLTRSKSMATAEELASIRRRKGE	711
Rattus	GNRLVMKVSVTRKPEED-SARRRAPPPKRAPSTTLTRSKSMATAEELASIRRRKGE	71

Xenopus	--DEI-LVASDPSLCPDIAEADSRAATVKQRTSRRITPAEISSLLERQGIPOHVVHFP	969
Pan	KLDEMLAAAAEPTLRPIADADSRAATVKQRTSRRITPAEISSLFRQGLPGPEKL---	753
Canis	RQP---RGGGQAV-----SAGAIARQKQGGRTDIW-TGQVLRGCLCGSCCLGR-	788
Bos	KLDETLAAAAEPALRPDIADADSRAATVKQRTSRRITPAEISSLFRQGLPGPEKL---	770
Homo	KLDEMLAAAAEPTLRPIADADSRAATVKQRTSRRITPAEISSLFRQGLPGPEKL---	769
Mus	KLDETLAAAAEPTLRPIADADSRAATVKQRTSRRITPAEISSLFRQGLPGPEKL---	768
Rattus	KLDETLAAAAEPTLRPIADADSRAATVKQRTSRRITPAEISSLFRQGLPGPEKL---	768
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Xenopus	NEKHFFQLHGMSTRKSVGEDEKFSDFSDFGRFPRTSMQDSLREGPIPPPPQKAAPP	1029
Pan	----PGSLRKGIPTKSVGEDEKLA-SLLEGRFPRTSMQDLPVREGPIPP-----	800
Canis	--SSAGRAAGLTGSPLSAGEDEKLA-SLLEGRFPRTSMQDSLFEGRGIPPPQTAPPPP	845
Bos	----PGSLRKGIPTKSVGEDEKLA-SLLEGRFPRTSMQDLPVREGPIPPPPQTAPPPP	825
Homo	----PGSLRKGIPTKSVGEDEKLA-SLLEGRFPRTSMQDLPVREGPIPPPPQTAPPPP	824
Mus	----PGSLRKGIPTKSVGEDEKLA-SLLEGRFPRTSMQDLPVREGPIPPPPQTAPPPP	823
Rattus	----PGSLRKGIPTKSVGEDEKLA-SLLEGRFPRTSMQDLPVREGPIPPPPQTAPPPP	823
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Xenopus	PTPYFDTGPPPTFSPP-PPPGRAYDTHSSFKPGFEARFHGLQHGMSAELLMDRGLP	1088
Pan	-----PFPGRAYDTHSSFKPGLEEARLGAGAGLYEP--GAALGGLP	840
Canis	PAPYFDGSPPPAFSPP-PPPGRAYDTHSSFKPGLEEARLGAGATGLYEA--GAPLGGLP	902
Bos	PAPYFDGSPPPAFSPP-PPPGRAYDTHSSFKPGLEEARLGAGAGLYDS--GAALGGLP	882
Homo	PAPYFDGSPPPAFSPP-PPPGRAYDTHSSFKPGLEEARLGAGAGLYEP--GAALGGLP	881
Mus	PAPYFDGSPPPPTFSPP-PPPGRAYDTHSSFKPGLEEARLGAGAGLYDP--STPLGGLP	880
Rattus	PAPYFDGSPPPPTFSPP-PPPGRAYDTHSSFKPGLEEARLGAGAGLYDS--GTPLGGLP	881
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Xenopus	PPDRQKRARSMIILQDTSHPVEPTSIQRGSPSTPPEKLKRRSRA--TENTYANVG---	1143
Pan	YPERQKRARSMIILQDSAPE---SGDAPRPPPAATPPERPKRRPRPPGDSPYANLGAFS	897
Canis	YPERQKRARSMIILQDSAPE---VGVPRPPPAATPPERPKRRPRPPGDSPYANLGAFS	959
Bos	YPERQKRARSMIILQDSAPE---AADASRPPPAATPPERPKRRPRPPGDSPYANLGAFS	939
Homo	YPERQKRARSMIILQDSAPE---SGDAPRPPPAATPPERPKRRPRPPGDSPYANLGAFS	938
Mus	YPERQKRARSMIILQDSAPE---VGVPRPPPAATPPERPKRRPRPPGDSPYANLGAFS	937
Rattus	YPERQKRARSMIILQDSAPE---VGVPRPPPAATPPERPKRRPRPPGDSPYANLGAFS	938
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Xenopus	--IFAPMKPQRKKSPLVKQLQVEDAQERAAALAM-----VGGFSRDPSPSRSPRQSMME	1195
Pan	ASLFAPSKPQRKKSPLVKQLQVEDAQERAAALAVGSPGPGGGSFAREPSPTHRGPRPGGLE	957
Canis	ASIFAPSKPQRKKSPLVKQLQVEDAQERAAALAVGSPGPGGGSFAREPSPTHRGPRPGGLD	1019
Bos	ASLFAPSKPQRKKSPLVKQLQVEDAQERAAALAVGSPGPGVGSFAREPSPTHRGPRPGSLD	999
Homo	ASLFAPSKPQRKKSPLVKQLQVEDAQERAAALAVGSPGPGGGSFAREPSPTHRGPRPGGLD	998
Mus	ASLFAPSKPQRKKSPLVKQLQVEDAQERAAALAVGSPGPGVGSFAREPSPTHRGPRPGSLD	997
Rattus	ASLFAPSKPQRKKSPLVKQLQVEDAQERAAALAVGSPGPGVGSFAREPSPTHRGPRPGGLD	998
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Xenopus	LGTAQHDLSSPFATALAGVMKERERRLDEKRVSTVFLSVGAIEGTTPSPDLPSLQPSRS	1255
Pan	YGAGDGPGLA--FGGP---GPAKDRRLLEERRRSTVFLSVGAIEGSAPSADLPSLQPSRS	1011
Canis	YGPADGPGLA--FGGP---GPAKDRRLLEERRRSTVFLSVGAIEGSPPSADLPSLQPSRS	1073
Bos	YGPADGPGLA--FGGP---GPAKDRRLLEERRRSTVFLSVGAIEGSAPSADLPSLQPSRS	1053
Homo	YGAGDGPGLA--FGGP---GPAKDRRLLEERRRSTVFLSVGAIEGSAPSADLPSLQPSRS	1052
Mus	YSSGEGLGLT--FGGPS--PGPVKERRLEERRRSTVFLSVGAIEGSPPSADLPSLQPSRS	1053
Rattus	YSSGEGLGLT--FGGPS--PGPVKERRLEERRRSTVFLSVGAIEGNPPSADLPSLQPSRS	1054
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Xenopus	VDERLLGS-----RDVLLSPSGSLKSLMY---SSSHSTFIHPLTGKPLDPNSPLAL	1304
Pan	IDERLLGTGP--TAGRDLLSPVSALKPLVSGPSLGSSTFIHPLTGKPLDPSSPLAL	1069
Canis	IDERLLGAGAAPTGRDLLLLSPVSALKPLVSGPSLGSSTFIHPLTGKPLDPSSPLAL	1133
Bos	IDERLLGTGP--TAGRDLLSPVSALKPLVSGPSLGSSTFIHPLTGKPLDPSSPLAL	1112
Homo	IDERLLGTGP--TAGRDLLSPVSALKPLVSGPSLGSSTFIHPLTGKPLDPSSPLAL	1110
Mus	IDERLLGTGP--TAGRDLLSPVSALKPLVSGPSLGSSTFIHPLTGKPLDPSSPLAL	1111
Rattus	IDERLLGTGP--TAGRDLLSPVSALKPLVSGPSLGSSTFIHPLTGKPLDPSSPLAL	1112
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Xenopus	ALAARERALSQAASSPPPTPTPVRSPESDRAPPLFLEIQTKEGEMGHEFGSASPIYS	1364
Pan	ALAARERALSQA---PSRSPTPVHSPDADRPGLFVDVQARDPERGSL---ASPAFS	1121
Canis	ALAARERALSQA---PSRSPTPVHSPDADRPGLFVDVQARDSERGAL---ASPAFS	1185
Bos	ALAARERALSQA---PSRSPTPVHSPDADRPGLFVDVQARDSERGSL---ASPAFS	1164
Homo	ALAARERALSQA---PSRSPTPVHSPDADRPGLFVDVQARDPERGSL---ASPAFS	1162
Mus	ALAARERALSQT---PSRSPTPVHSPDADRPGLFVDVQARDSERGSL---ASPAFS	1163
Rattus	ALAARERALSQT---PSRSPTPVHSPDADRPGLFVDVQARDSERGSL---ASPAFS	1164
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Xenopus	PSGAQIKGQWTPLRDGDVPRDKSPERPVSKEERKPMILSIVDTSQQKTAGLIMVHAT	1424
Pan	PR---SPAWIPVPAR---REAEKVPREERKSPEDKKSMILSVLDTSLQRPAGLIVVHAT	1174
Canis	PR---SPAWIPVPAR---REAEKVPREERKSPEDKKSMILSVLDTSLQRPAGLIVVHAT	1238
Bos	PR---SPAWIPVPAR---REAEKVPREERKSPEDKKSMILSVLDTSLQRPAGLIVVHAT	1217
Homo	PR---SPAWIPVPAR---REAEKVPREERKSPEDKKSMILSVLDTSLQRPAGLIVVHAT	1215
Mus	PR---SPAWIPVPAR---REAEKVPREERKSPEDKKSMILSVLDTSLQRPAGLIVVHAT	1216
Rattus	PR---SPAWIPVPAR---REAEKVPREERKSPEDKKSMILSVLDTSLQRPAGLIVVHAT	1217



Xenopus	SNGTEKEQE-----PPATTD-----KQVEQPPDIEKA--PSSSSDKTLGQGSSE	1470
Pan	SNGQEPSRLGGAEEERPGTPELAPAPMQSAVAEPLPSRAQPPGGT-PADAGPGQGSSE	1233
Canis	SNGQEPSGLG-AEEERPSTPELAPAPPQSAVAEPLASRAQPPGSAPPTDPPGPGQGSSE	1297
Bos	SNGHPEPSGLG-AEEERPGTPELAPARTQSAVAEPLPSRAQPPGSA-PTDPPGPGQGSSE	1275
Homo	SNGQEPSRLGGAEEERPGTPELAPAPMQSAVAEPLPSRAQPPGGT-PADAGPGQGSSE	1274
Mus	SNGQEPSRLG-AEEERPGTPELAPAPMQSAVAEPLPSRAQPPGSI-PADPGPGQGSSE	1274
Rattus	SNGQEPNRLG-AEEERPGTPELAPTMQAAVAEPLPSRAQPPGNI-PADPGPSQGNSE	1275
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Xenopus	EEV-EPFGGNLPPAMLSSSDEETREELAKIGLVPPDAFANGVLVTKPGTPISQLTRPGT	1529
Pan	EEPELVFAVNLPPAQLSSSDEETREELARIGLVPPPEEFANGVLLATPLAG-----PGP	1287
Canis	EEPELVFAVNLPPAQLSSSDEETREELARIGLVPPPEEFANGVLLATPLG-----PGP	1351
Bos	EEPELVFAVNLPPAQLSSSDEETREELARIGLVPPPEEFANGVLLATPLG-----PGP	1329
Homo	EEPELVFAVNLPPAQLSSSDEETREELARIGLVPPPEEFANGVLLATPLAG-----PGP	1328
Mus	EEPELVFAVNLPPAQLSSSDEETREELARIGLVPPPEEFANGILLTTPPG-----PGP	1328
Rattus	EEPKLVFAVNLPPAQLSSNDEETREELARIGLVPPPEEFANGILLATPPP-----PGP	1329
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Xenopus	LAVPSAKQASSTPPSGKPSDAPHHPESATDSGVEEVDTRSSSDHLETTSTISTVSSMS	1589
Pan	-----SPTTVPSASGKPSSEPPAPESAADSGVEEADTRSSSDPHLETTSTISTVSSMS	1342
Canis	-----SPTTVPGASGKPSSEPPAPESAADSGVEEADTRSSSDPHLETTSTISTVSSMS	1406
Bos	-----SPTTVPGASGKPSSEPPAPESAADSGVEEADTRSSSDPHLETTSTISTVSSMS	1384
Homo	-----SPTTVPSASGKPSSEPPAPESAADSGVEEADTRSSSDPHLETTSTISTVSSMS	1383
Mus	-----LPTTVPSASGKPSSELPPAPESAADSGVEEADTRSSSDPHLETTSTISTVSSMS	1383
Rattus	-----LPTTVPSASGKPSSELPPAPESAADSGVEEADTRSSSDPHLETTSTISTVSSMS	1384
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Xenopus	TLSSSEGEPTDITYSYADGQTFLEKPPVPPKPKLKSQLMKGTVTRDPLLKQSSDSELI	1649
Pan	TLSSSEGLTDTHTSFADGHTFLEKPPVPPKPKLKSPLGKGPVTRDPLLKQSSDSELM	1402
Canis	TLSSSEGLTDTHTSFADGHTFLEKPPVPPKPKLKSPLGKGPVTRDPLLKQSSDSELM	1466
Bos	TLSSSEGLTDTHTSFADGHTFLEKPPVPPKPKLKSPLGKGPVTRDPLLKQSSDSELM	1444
Homo	TLSSSEGLTDTHTSFADGHTFLEKPPVPPKPKLKSPLGKGPVTRDPLLKQSSDSELM	1443
Mus	TLSSSEGLTDTHTSFADGHTFLEKPPVPPKPKLKSPLGKGPVTRDPLLKQSSDSELM	1443
Rattus	TLSSSEGLTDTHTSFADGHTFLEKPPVPPKPKLKSPLGKGPVTRDPLLKQSSDSELM	1444
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Xenopus	AQQQLA-----AGRPYLFQRRSKLWGDVPSRPLSHGGPVEMEKPSVIGETSSR	1699
Pan	AQQHHAASAGLASAAGPARPYLFQRRSKLWGDVPSRGLPG---PEDDKPTVISELSSR	1459
Canis	AQQHHAASAGLASAAGPARPYLFQRRSKLWGDVPSRGLPG---PEDDKPTVISELSSR	1523
Bos	AQQHHAATAGLASAAGPARPYLFQRRSKLWGDVPSRGLPG---PEDDKPTVISELSSR	1501
Homo	AQQHHAASAGLASAAGPARPYLFQRRSKLWGDVPSRGLPG---PEDDKPTVISELSSR	1500
Mus	AQQHHAATAGLASAAGPARPYLFQRRSKLWGDVPSRGLPG---PEDDKPTVISELSSR	1500
Rattus	AQQHHAATSTGLTSAAGPARPYLFQRRSKLWGDVPSRGLPG---PEDDKPTVISELSSR	1501
	** * * * * * * * * * * * * * * * * * * * * * * * * * * * * *	
Xenopus	LQQLNKDTRSLGEEPVSIP---GMDPVKKSPV-----VAARLFSSLGELHTISQR--	1745
Pan	LQQLNKDTRSLGEEPVGGLGSLDPAKKSPIAAARCRSPMVGLRLFSSLGELSSISA-QR	1518
Canis	LQQLNKDTRSLGEEPVGGLGSLDPAKKSPIAAA-----RLFSSLGELSTISA-QR	1573
Bos	LQQLNKDTRSLGEEPVGGLGSLDPAKKSPIAAA-----RLFSSLGELSTISAQQR	1552
Homo	LQQLNKDTRSLGEEPVGGLGSLDPAKKSPIAAA-----RLFSSLGELSSISA-QR	1550
Mus	LQQLNKDTRSLGEEPVGGLGSLDPAKKSPIAAA-----RLFSSLGELSTISA-QR	1550
Rattus	LQQLNKDTRSLGEEPVGGLGSLDPAKKSPIAAARCAVVPAGWLFSSLGELSTISA-QR	1560
	** * * * * * * * * * * * * * * * * * * * * * * * * * * * * *	
Xenopus	-----SYGTSYTVRPGSRHPLTRAPSPVPPSS-ERVEPLG-----GARSYTLTPPTILK	1794
Pan	SPGGPGGGGASYSVRPSGRYPVARRAPSPVKPASLERVEGLGAGAGGAGRPFGTPTPTILK	1578
Canis	SPGGPGGGGASFPVRPGGRYPVARRAPSPVKPASLERVEGLGAGAGGAGRPFGTPTPTILK	1633
Bos	SPGGPGGGGASYPVRPGGRYPVARRAPSPVKPASLERVEGLGAGAGGAGRPFGTPTPTILK	1612
Homo	SPGGPGGGGASYSVRPSGRYPVARRAPSPVKPASLERVEGLGAGAGGAGRPFGTPTPTILK	1610
Mus	SPGGPGGGGASYSVRPSGRYPVARRAPSPVKPASLERVEGLGAGAGGAGRPFGTPTPTILK	1610
Rattus	SPGGPGGGGASYSVRPSGRYPVARRAPSPVKPASLERVEGLGAGAGGAGRPFGTPTPTILK	1620
	* * * * * * * * * * * * * * * * * * * * * * * * * * * * * *	
Xenopus	SSLSVPHEPKVEFRFVVRVSARSRSPPSSG-----HPLHPARPFMQPLSLWNK	1845
Pan	SSLSIPHEPKVEFRFVVRVSARSRSPPSPPLSPASGPGGAPGRRPFQKPLQLWSK	1638
Canis	SSLSIPHEPKVEFRFVVRVSARSRSPPSPPLSPAPGPGGAPGPNRPXQKPLQFWSK	1693
Bos	SSLSIPHEPKVEFRFVVRVSARSRSPPSPPLSPAPGPGGAPGRRPFQKPLQLWSK	1672
Homo	SSLSIPHEPKVEFRFVVRVSARSRSPPSPPLSPASGPGGAPGRRPFQKPLQLWSK	1670
Mus	SSLSIPHEPKVEFRFVVRVSARSRSPPSPPLSPSPGSGPS-AGRRPFQKPLQLWSK	1669
Rattus	SSLSIPHEPKVEFRFVVRVSARSRSPPSPPLSPSPGSGPS-AGRRPFQKPLQLWSK	1679
	***** * * * * * * * * * * * * * * * * * * * * * * * * * * * * *	
Xenopus	YDVGWLESLNLAHRLKFQDNEIEGSHLPALT KD FVELGVTRVGHMNIERALRQLST	1905
Pan	FDVGWLESLIHLGEHRDRFEDHEIEGAHLALT KD FVELGVTRVGHMNIERALRQLDG	1698
Canis	FDVGWLESLIHLGEHRDRFEDHEIEGAHLALT KD DVELGVTRVGHMNIERALRQLDG	1753
Bos	FDVGWLESLIHLGEHRDRFEDHEIEGAHLALT KD FVELGVTRVGHMNIERALRQLDG	1732
Homo	FDVGWLESLIHLGEHRDRFEDHEIEGAHLALT KD FVELGVTRVGHMNIERALRQLDG	1730
Mus	FDVGWLESLIHLGEHRDRFEDHEIEGAHLALT KD FVELGVTRVGHMNIERALRQLDG	1729
Rattus	FDVGWLESLIHLGEHRDRFEDHEIEGAHLALT KD FVELGVTRVGHMNIERALRQLDG	1739

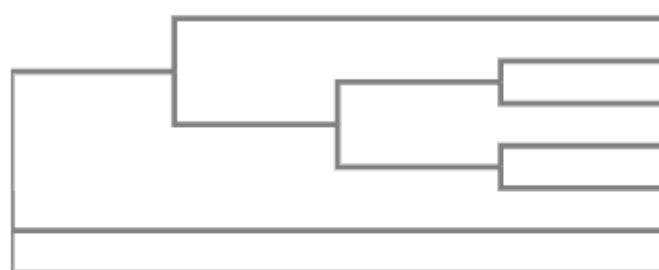
Xenopus	S	1906
Pan	S	1699
Canis	S	1754
Bos	S	1733
Homo	S	1731
Mus	S	1730
Rattus	S	1740

\*

## Phylogenetic Tree

*This is a Neighbour-joining tree without distance corrections.*

Branch length: ☒ Cladogram ☐ Real

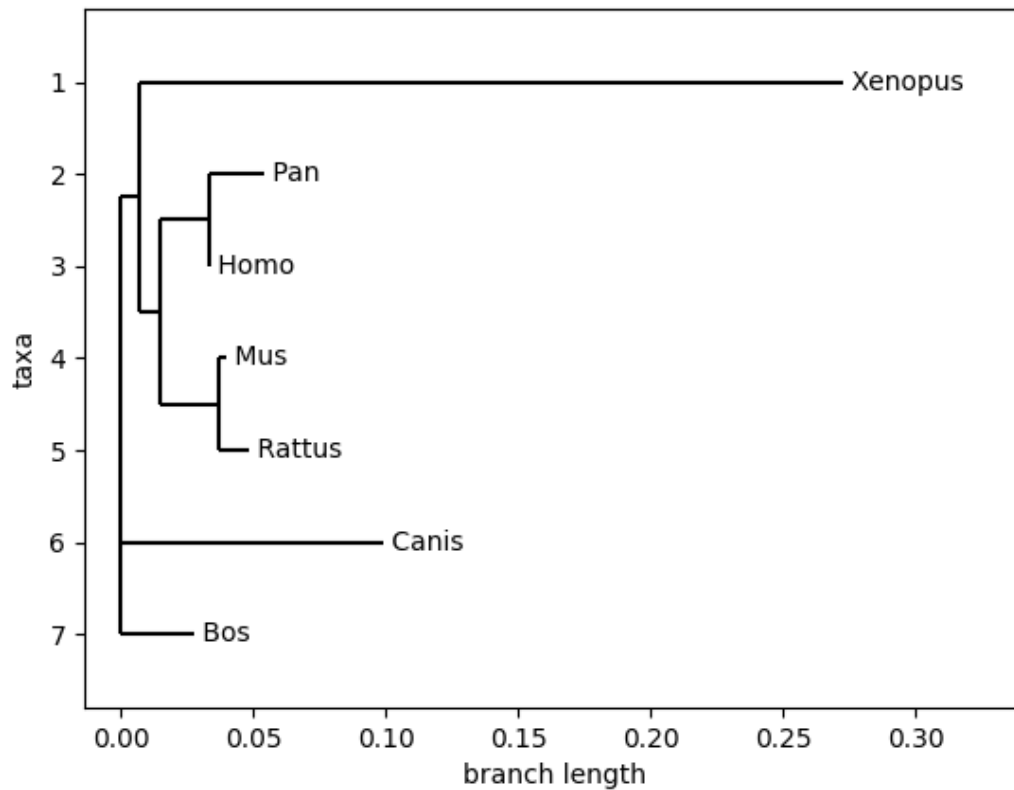


Xenopus 0.26523  
 Pan 0.0208  
 Homo -0.00023  
 Mus 0.0029  
 Rattus 0.01097  
 Canis 0.09914  
 Bos 0.02783

## Tree Data

```
(
(
Xenopus:0.26523,
(
(
Pan:0.02080,
Homo:-0.00023)
:0.01844,
(
Mus:0.00290,
Rattus:0.01097)
:0.02226)
:0.00777)
:0.00722,
Canis:0.09914,
Bos:0.02783);
```

Poprzez biopythona:



### 3. Dystanse.

Dystans od Homo Sapiens do Xenopus wynosi 0.29121

Dystans od Homo Sapiens do Pan wynosi 0.020569999999999998

Dystans od Homo Sapiens do Mus wynosi 0.04337

Dystans od Homo Sapiens do Rattus wynosi 0.05144

Dystans od Homo Sapiens do Canis wynosi 0.13234

Dystans od Homo Sapiens do Bos wynosi 0.06103