

**Supplementary Table S3. Tetrapod alignment including 13 rod opsin sequences used in Bayesian phylogenetic analyses.** Accession numbers, obtained from NCBI: common frog (*Rana temporaria*): U59920.1; anole (*Anolis carolinensis*): L31503.1; chicken (*Gallus gallus*): NM\_001030606.1; alligator (*Alligator mississippiensis*): U23802.1; platypus (*Ornithorhynchus anatinus*): NM\_001082349.1; white-eared opossum (*Caluromys philander*): AY313946.1; fat-tailed dunnart (*Sminthopsis crassicaudatus*): AY159786.2; cat (*Felis felis*): NM\_001009242.1; cow (*Bos taurus*): NM\_001014890.1; mouse (*Mus musculus*): NM\_145383.1; human (*Homo sapiens*): BC112104.1; crab-eating macaque (*Macaca fascicularis*): S76579. Note the residues highlighted by a gray background, which indicate interesting sites and are discussed in the text.

frog	MNGTEGPNFY	IPMSNKTGVV	RSPFEYPQYY	LAEPWKYSIL	AAYMFLLILL	GFPINFMTLY
anole	MNGTEGQNFY	VPMSNKTGVV	RNPFYEYPQYY	LADPWQFSAL	AAYMFLLILL	GFPINFLTLF
alligator	MNGTEGPDFY	IPFSNKTGVV	RSPFEYPQYY	LAEPWKYSAL	AAYMFMLIIL	GFPINFLTLY
chicken	MNGTEGQDFY	VPMSNKTGVV	RSPFEYPQYY	LAEPWKFSAL	AAYMFMLILL	GFPVNFLTLY
platypus	MNGTEGQDFY	IPMSNKTGVV	RSPFEYPQYY	LAEPWQYSVL	AAYMFMLIML	GFPINFLTLY
<b>echidna</b>	<b>MNGTEGQDFY</b>	<b>IPMSNKTGIV</b>	<b>RSPFEYPQYY</b>	<b>LAEPWQYSVL</b>	<b>AAYMFMLIML</b>	<b>GFPINFLTLY</b>
opossum	MNGTEGPNFY	VPFSNKTGVV	RSPFEYPQYY	LAEPWQFSCL	AAYMFMLIVL	GFPINFLTLY
dunnart	MNGTEGPNFY	VPYSNKSQVV	RSPYEYPQYY	LAEPWMFSCS	AAYMFMLIVL	GFPINFLTLY
cow	MNGTEGPNFY	VPFSNKTGVV	RSPFEAPQYY	LAEPWQFSML	AAYMFLLIML	GFPINFLTLY
cat	MNGTEGPNFY	VPFSNKTGVV	RSPFEYPQYY	LAEPWQFSML	AAYMFLLIVL	GFPINFLTLY
mouse	MNGTEGPNFY	VPFSNVTGVV	RSPFEQPYYY	LAEPWQFSML	AAYMFLLIVL	GFPINFLTLY
macaque	MNGTEGPNFY	VPFSNATGVV	RSPFEYPQYY	LAEPWQFSML	AAYMFLLIVL	GFPINFLTLY
human	MNGTEGPNFY	VPFSNATGVV	RSPFEYPQYY	LAEPWQFSML	AAYMFLLIVL	GFPINFLTLY
frog	VTIQHKKLRT	PLNYILLNLA	FANHFVVLGG	FTITLYTSLH	GYFVFGQSGC	YFEGFFATLG
anole	VTIQHKKLRT	PLNYILLNLA	VANLFMVLGM	FTTMYTSMN	GYFIFGTVGC	NIEGFFATLG
alligator	VTVQHKKLRS	PLNYILLNLA	VADLFMVLGG	FTTLYTSMN	GYFVFGVTCG	YFEGFFATLG
chicken	VTIQHKKLRT	PLNYILLNLV	VADLFMVLGG	FTTMYTSMN	GYFVFGVTCG	YIEGFFATLG
platypus	VTIQHKKLRT	PLNYILLNLA	FANHFVVLGG	FTTLYTSLH	GYFVFGPTGC	NIEGFFATLG
<b>echidna</b>	<b>VTIQHKKLRT</b>	<b>PLNYILLNLA</b>	<b>FANHFVVLGG</b>	<b>FTTLYTSLH</b>	<b>GYFVFGPTGC</b>	<b>NIEGFFATLG</b>
opossum	VTIQHKKLRT	PLNYILLNLA	IADLFMVLGG	FTTLYTSLH	GYFVFGPTGC	DIEGFFATLG
dunnart	VTIQHKKLRT	PLNYILLNLA	VADLFMVICG	FTTTLVTSLN	GYFVFGTTCG	LVEGFFATTCG
cow	VTVQHKKLRT	PLNYILLNLA	VADLFMVLGG	FTTLYTSLH	GYFVFGPTGC	NIEGFFATLG
cat	VTVQHKKLRT	PLNYILLNLA	VADLFMVLGG	FTTLYTSLH	GYFVFGPTGC	NIEGFFATLG
mouse	VTVQHKKLRT	PLNYILLNLA	VADLFMVLGG	FTTLYTSLH	GYFVFGPTGC	NIEGFFATLG
macaque	VTVQHKKLRT	PLNYILLNLA	VADLFMVLGG	FTTLYTSLH	GYFVFGPTGC	NAEGFFATLG
human	VTVQHKKLRT	PLNYILLNLA	VADLFMVLGG	FTTLYTSLH	GYFVFGPTGC	NIEGFFATLG
frog	GEIALWSLVA	LAIERYIVVC	KPMSNFRFGE	NHAMMGVAFT	WIMALACAVP	PLFGWSRYIP
anole	GEMGLWSLVV	LAVERYVVIC	KPMSNFRFGE	THALIGVST	WIMALACAGP	PLFGWSRYIP
alligator	GEVALWCLVV	LAIERYIVVC	KPMSNFRFGE	NHAIMGVVFT	WIMALTCAAP	PLFGWSRYIP
chicken	GEIALWSLVV	LAVERYVVVC	KPMSNFRFGE	NHAIMGVAFS	WIMAMACAAP	PLFGWSRYIP
platypus	GEIALWSLVV	LAIERYIVVC	KPMSNFRFGE	NHAIMGVAFT	WIMALACALP	PLFGWSRYIP
<b>echidna</b>	<b>GEIALWSLVV</b>	<b>LAIERYIVVC</b>	<b>KPMSNFRFGE</b>	<b>NHAIMGVVFT</b>	<b>WIMALACAFP</b>	<b>PLFGWSRYIP</b>
opossum	GEIALWSLVV	LAIERYIVXC	KXMSNFRFGE	NHAIMGVAFT	WIMALACAAP	PLFGWSRYIP
dunnart	GEVALWALVV	LAIERYIVVC	KPMSNFRFGE	NHAIMGVAFT	WIMALACSVP	PIFGWSRYIP
cow	GEIALWSLVV	LAVERYVVVC	KPMSNFRFGE	NHAIMGVAFT	WIMALACAAP	PLFGWSRYIP
cat	GEIALWSLVV	LAVERYVVVC	KPMSNFRFGE	NHAIMGVAFT	WIMALACAAP	PLFGWSRYIP
mouse	GEIALWSLVV	LAVERYVVVC	KPMSNFRFGE	NHAIMGVVFT	WIMALACAAP	PLFGWSRYIP
macaque	GEIALWSLVV	LAVERYVVVC	KPMSNFRFGE	NHAIMGVAFT	WIMALACAAP	PLFGWSRYIP
human	GEIALWSLVV	LAVERYVVVC	KPMSNFRFGE	NHAIMGVAFT	WIMALACAAP	PLFGWSRYIP
frog	EGMQCSCGVD	YYTLKPEINN	ESFVIYMFVV	HFLIPLIIT	FCYGRVLVCTV	KEAAAQQQES
anole	EGMQCSCGVD	YYTPTPEVHN	ESFVIYMFV	HFVTPLTIIIF	FCYGRVLVCTV	KEAAAQQQES
alligator	EGMQCSCGVD	YYTLKPEVNN	ESFVIYMFVV	HFAIPLAVIF	FCYGRVLVCTV	KEAAAQQQES
chicken	EGMQCSCGID	YYTLKPEINN	ESFVIYMFVV	HFMIPAVIF	FCYGNLVCTV	KEAAAQQQES
platypus	EGMQCSCGID	YYTLRPEVNN	ESFVIYMFVV	HFTIPMTIIF	FCYGRVLVFTV	KEAAAQQQES
<b>echidna</b>	<b>EGMQCSCGID</b>	<b>YYTLKPEVNN</b>	<b>ESFVIYMFVV</b>	<b>HFTIPMTIIF</b>	<b>FCYGRVLVFTV</b>	<b>KEAAAQQQES</b>
opossum	EGMQCSCGID	YYTLKPEVNN	ESFVIYMFVV	HFTIPMVVIF	FCYGQLVFTV	KEAAAQQQES
dunnart	EGMQCSCGID	YYTLNPEFNN	ESFVIYMFVV	HFIIPLTVIF	FCYGQLVFTV	KEAAAQQQES
cow	EGMQCSCGID	YYTPHEETNN	ESFVIYMFVV	HFIIPLIVIF	FCYGQLVFTV	KEAAAQQQES
cat	EGMQCSCGID	YYTLKPEVNN	ESFVIYMFVV	HFTIPMIVIF	FCYGQLVFTV	KEAAAQQQES
mouse	EGMQCSCGID	YYTLKPEVNN	ESFVIYMFVV	HFTIPMIVIF	FCYGQLVFTV	KEAAAQQQES
macaque	EGLQCSCGID	YYTLKPEVNN	ESFVIYMFVV	HFTIPMIVIF	FCYGQLVFTV	KEARAQQQES
human	EGLQCSCGID	YYTLKPEVNN	ESFVIYMFVV	HFTIPMIIF	FCYGQLVFTV	KEAAAQQQES

frog	ATTQKAEKEV	TRMVIIMVIF	FLICWVPYAY	VAFYIFCNOG	SEFGPIFMTV	PAFFAKSSAI
anole	ATTQKAEREV	TRMVVIMVIS	FLVCWVPYAS	VAFYIFTHQG	SDFGPVFMTI	PAFFAKSSAI
alligator	ATTQKAEKEV	TRMVIIMVVS	FLICWVPYAS	VAFYIFSNQG	SDFGPVFMTI	PAFFAKSSAI
chicken	ATTQKAEKEV	TRMVIIMVIA	FLICWVPYAS	VAFYIFTNQG	SDFGPIFMTI	PAFFAKSSAI
platypus	ATTQKAEKEV	TRMVIIMVIA	FLICWVPYAS	VAFYIFTHQG	SNFGPIFMTV	PAFFAKSSAI
<b>echidna</b>	<b>ATTQKAEKEV</b>	<b>TRMVIIMVIA</b>	<b>FLICWVPYAS</b>	<b>VAFYIFTHQG</b>	<b>SNFGPIFMTA</b>	<b>PAFFAKSSAI</b>
opossum	ATTQKAEKEV	TRMVIIMVIA	FLICWLPYAG	VAFYIFTHQG	SNFGPILMTL	PAFFAKTSAV
dunnart	ATTQKAEKEV	TRMVIIMVIA	FLICWVPYAS	VAFYIFTHQG	SDFGPIFMTL	PAFFAKSSSI
cow	ATTQKAEKEV	TRMVIIMVIA	FLICWLPYAG	VAFYIFTHQG	SDFGPIFMTI	PAFFAKTSAV
cat	ATTQKAEKEV	TRMVIIMVIA	FLICWVPYAS	VAFYIFTHQG	SNFGPIFMTL	PAFFAKSSSI
mouse	ATTQKAEKEV	TRMVIIMVIF	FLICWLPYAS	VAFYIFTHQG	SNFGPIFMTL	PAFFAKSSSI
macaque	ATTQKAEKEV	TRMVIIMVIA	FLICWVPYAS	VAFYIFTHQG	SNFGPIFMTI	PAFFAKSASI
human	ATTQKAEKEV	TRMVIIMVIA	FLICWVPYAS	VAFYIFTHQG	SNFGPIFMTI	PAFFAKSAAI

frog	YNPVIYIMLN	KQFRNCMITT	LCCGKNPFGD	DDASSAATS-	KTEATSVSTS	QVSPA
anole	YNPVIYIILMN	KQFRNCMIMT	LCCGKNPLGD	EETSAG---T	KTETSTVSTS	QVSPA
alligator	YNPVIYIVMN	KQFRNCMITT	LCCGKNPLGD	DETATG---S	KTETSSVSTS	QVSPA
chicken	YNPVIYIVMN	KQFRNCMITT	LCCGKNPLGD	EDTSAG----	KTETSSVSTS	QVSPA
platypus	YNPVIYIMMN	KQFRNCMLTT	ICCGKNPLGD	DEASATA--S	KTEQSSVSTS	QVSPA
<b>echidna</b>	<b>YNPVIYIMMN</b>	<b>KQFRNCMLTT</b>	<b>ICCGKNPLGD</b>	<b>DEASATA--S</b>	<b>KTEQSSVSTS</b>	<b>QVSPA</b>
opossum	YNPVIYIMLN	KQFRNCMLTT	LCCGKIPLGD	DEASATA--S	KTETSQVA--	---PA
dunnart	YNPVIYIMMN	KQFRNCMITT	LCCGKNPLGD	DEASTTA--S	KTETSQVA--	---PA
cow	YNPVIYIMMN	KQFRNCMVTT	LCCGKNPLGD	DEASTTV--S	KTETSQVA--	---PA
cat	YNPVIYIMMN	KQFRNCMLTT	LCCGKNPLGD	DEASTTG--S	KTETSQVA--	---PA
mouse	YNPVIYIMLN	KQFRNCMLTT	LCCGKNPLGD	DDASATA--S	KTETSQVA--	---PA
macaque	YNPVIYIMMN	KQFRNCMLTT	ICCGKNPLGD	DEASATV--S	KTETSQVA--	---PA
human	YNPVIYIMMN	KQFRNCMLTT	ICCGKNPLGD	DEASATV--S	KTETSQVA--	---PA