

i

hydrophobic groove of ERKs

ERK1	¹²⁷ ETDLYKLLK	SQQL	SNDHICYFLY	¹⁴⁹	175	I	NTTCD	180
ERK2	¹⁰⁷ ETDLYKLLK	TQHL	SNDHICYFLY	¹²⁹	155	L	NTTCD	160

acid patch of ERKs

ERK1	⁹⁷ RHENI	¹⁰¹	¹⁴¹ NDHICYFLYQILR	¹⁵³	¹⁷⁷ TTCD	¹⁸⁰	³³⁵ YDPTDE	³⁴⁰
ERK2	⁷⁷ RHENI	⁸¹	¹²¹ NDHICYFLYQILR	¹³³	¹⁵⁷ TTCD	¹⁶⁰	³¹⁵ YDPSDE	³²⁰

ii

ERK1	²¹³ YRAPEI	MLNSK	²²¹	²⁴⁸ GKH	YLDQ	LNHI	²⁵⁸	²⁷⁸ ARNYL	QS	²⁸⁴
ERK2	¹⁹³ YRAPEI	MLNSK	²⁰¹	²²⁸ GKH	YLDQ	LNHI	²³⁸	²⁵⁸ ARNYL	LS	²⁶⁴

Additional file 1 B

Alignment of ERK1 sequences (MAPK3) from *A.carolinensis* and *M. musculus*
96.9 % identity after variable N-term (33 differences out of 351 aa)

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      1                               80
A.caro ERK1  MSAAATAAAPG GAGAVPVPGA PRLGV----- ETVKGVVFDV GPRYTDLQYI GEGAYGMVCS SYDHVNKIRA AIKKISPFEB
M.musc ERK1  MAATAAAPG GGGGEPGRGTA GVVPVVPGEV EVVKGQPFDV GPRYTQLQYI GEGAYGMVSS AYDHVRKTRV AIKKISPFEB

      81                               160
A.caro ERK1  QTYCQRTLRE IKILLRFKHE NVIGINDILR APTIDQMRDV YIVQDLMETD LYKLLKTQQL SNDHICYFLY QILRGLKYIH
M.musc ERK1  QTYCQRTLRE IQILLRFRHE NVIGIRDILR APTLEAMRDV YIVQDLMETD LYKLLKSQQL SNDHICYFLY QILRGLKYIH

      161                               240
A.caro ERK1  SANVLHRDLK PSNLLINTTC DLKICDFGLA RIADPDHDT GFLTEYVATR WYRAPEIMLN SKGYTKSIDEI WSVGCI LAEM
M.musc ERK1  SANVLHRDLK PSNLLINTTC DLKICDFGLA RIADPEHDT GFLTEYVATR WYRAPEIMLN SKGYTKSIDEI WSVGCI LAEM

      241                               320
A.caro ERK1  LSNRPIFP GK HYLDQLNHIL GILGSPSQDD LNCIINMKAR NYLQSLPKP KVPWNKLFPK ADPKALD LLD KMLTFNPNKR
M.musc ERK1  LSNRPIFP GK HYLDQLNHIL GILGSPSQED LNCIINMKAR NYLQSLPKT KVAWAKLFPK SDSKALD LLD RMLTFNPNKR

      321                               381
A.caro ERK1  ITVEESLAHP YLEQYYDPSD EPVAEEPFTF DMELDDL PKE KLKELIFEET ARFQPGYQGP
M.musc ERK1  ITVEEALAH P YLEQYYDPTD EPVAEEPFTF DMELDDL PKE RLKELIFEET ARFQGAPEG P
  
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Alignment of ERK2 sequences (MAPK1) from *A.carolinensis* and *M. musculus*
96.9 % identity after variable N-term (11 differences out of 351 aa)

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      1                               80
A.caro ERK2  MAAVSGAAGG SGANPAGGPE MVRGQAFDVG PRYTNLSYIG EGAYGMVCSA YDNVNKVRVA IKKISPFEBQ TYCQRTLREI
M.musc ERK2  MAATAAAGPE MVRGQVFDVG PRYTNLSYIG EGAYGMVCSA YDNLNKVRVA IKKISPFEBQ TYCQRTLREI

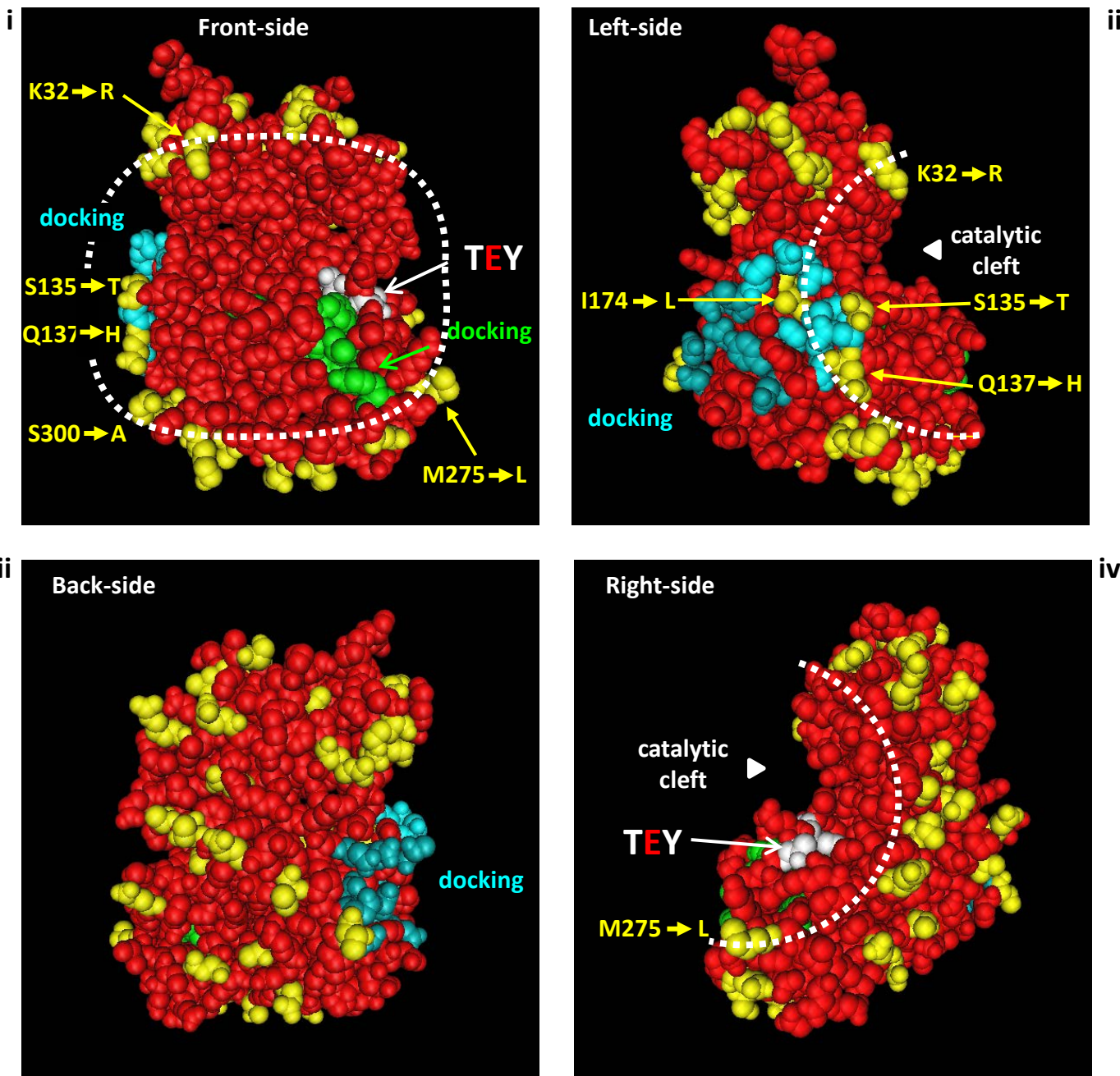
      81                               160
A.caro ERK2  KILLRFKHEN IIGINDIIRA PTTDQMKDVY IVQDLMETDL YKLLKTQHLS NDHICYFLYQ ILRGLKYIHS ANVLHRDLKP
M.musc ERK2  KILLRFRHEN IIGINDIIRA PTIEQMKDVY IVQDLMETDL YKLLKTQHLS NDHICYFLYQ ILRGLKYIHS ANVLHRDLKP

      161                               240
A.caro ERK2  SNLLLNNTCD LKVCDFGLAR VADPDHDTG FLTEYVATRW YRAPEIMLNS KGYTKSIDEI WSVGCI LAEML SNRPIFP GK
M.musc ERK2  SNLLLNNTCD LKICDFGLAR VADPDHDTG FLTEYVATRW YRAPEIMLNS KGYTKSIDEI WSVGCI LAEML SNRPIFP GK

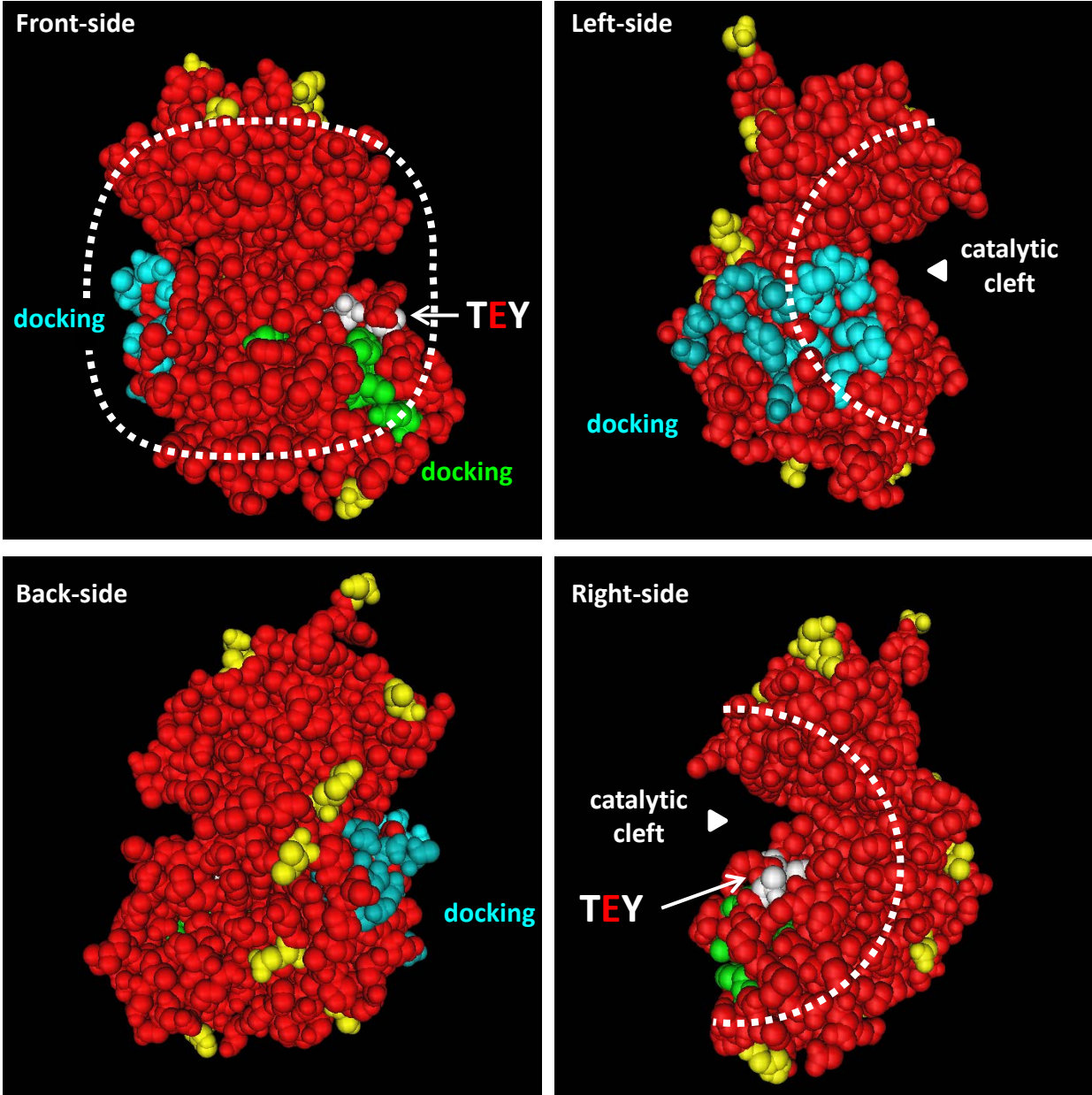
      241                               320
A.caro ERK2  YLDQLNHILG ILGSPSQEDL NCIINLKARN YLLSLPYKNK VPWNRLF PNA DAKALD LLDK MLTFNPHKRI EVEALAH PY
M.musc ERK2  YLDQLNHILG ILGSPSQEDL NCIINLKARN YLLSLPHKNK VPWNRLF PNA DSKALD LLDK MLTFNPHKRI EVEQALAH PY

      321                               368
A.caro ERK2  LEQYYDPSDE PVAEAPFKFD MELDDL PKEK LKELIFEETA RFQPGYRC
M.musc ERK2  LEQYYDPSDE PIAEAPFKFD MELDDL PKEK LKELIFEETA RFQPGYRS
  
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Differences between human-ERK1 and human-ERK2



Differences between rat-ERK2 and anolis-ERK2



Differences between human-ERK1 and anolis-ERK1

