

Supplemental data(2): Comparison of SP-A, TLR4 and MD2 amino acid sequences of different animal species. Alignment of amino acid sequences of (A) TLR4 (B) MD2 and (C) SP-A proteins in rat, mouse, baboon, macaca and human. The X-ray crystal structures of human TLR4, human MD2 and rat SP-A available in PDB format were used for bioinformatics simulation (Figure 4). The amino acid residues of SP-A, TLR4 and MD2 included in the bioinformatics simulations are shown (-> start, <- end). Homology between the proteins of different species is shown as *.

(A) TLR4

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House TLR4      <-
Rat TLR4      MHPPWLLARTLIALHAFPS-CLTPGSLMPCIEVVPNITVQCHDQKLSKVPDDIPSSYTKMID
Baboon TLR4    MHPLLHLAAGTLIALHAFPS-CLRPGSLMPCIEVLPNITVQCHDQKLSKVPDDIPSSYTKMID
Human TLR4     MHSASRLAGTLIPMAHAFSCVRPESWEPVEVVPNITVQCHLHFKYKIPDNLFPSTKMLD

House TLR4      LSFNPLKILKYSYFSPSELEQWLDLSRCEIETIEDKAMHGLHMLSHLITGMPIQSFSFG
Rat TLR4      LSFNPLKILKYSYFSPSELEQWLDLSRCEIETIEDKAMHGLHMLSHLITGMPIKSFSFG
Baboon TLR4    LSFNPLKILKYSYFSPSELEQWLDLSRCEIETIEDKAMHGLHMLSHLITGMPIQSLSLGL
Human TLR4     LSFNPLRHLGYSYFSPPELEQWLDLSRCEIQTIEDGAYQSLSHLITGMPIQSLSLGL

House TLR4      SFSGLTSLNHLVAVETKMLASLEFPIGQLTLKLLKLVAMHMFDMSCKLPAFYSHLTHLHVH
Rat TLR4      SFSGLTSLNHLVAVETKMLASLEFPIGQLTLKLLKLVAMHMFDMSCKLPAFYSHLTHLHVH
Baboon TLR4    SFSGLTSLNHLVAVETKMLASLEFPIGQLTLKLLKLVAMHMFDMSCKLPAFYSHLTHLHVH
Human TLR4     AFSGLSLQKLVAVETKMLASLEFPIGHLKTLKELKLVAMHMLIQSFKLPEFYSHLTHLHML

House TLR4      DLSYNYIQTIYVNDLQFLRENPQVHLSLDMSLNPIDFIQDQAFQGKIGLHMLTLRGNFNSS
Rat TLR4      DLSYNYIQTIYVNDLQFLRENPQVHLSLDMSLNPIDSIQDQAFQGKIRLHMLTLRGNFNSS
Baboon TLR4    DLSYNYIQTIYVNDLQFLRENPQVHLSLDMSLNPIDFIQDQAFQGKIRLHMLTLRGNFNSS
Human TLR4     DLSYNYIQTIYVNDLQFLRENPQVHLSLDMSLNPIDFIQDQAFQGKIRLHMLTLRGNFNSS

House TLR4      NIHKTCQLHLAGLVHRLILGEFKDERMLEIFEPSEMEGLCDVTDIDEFRLTYIYHDFSDDI
Rat TLR4      NIHKTCQLHLAGLVHRLILGEFKDERMLEIFEPSEMEGLCDVTDIDEFRLTYIYHDFSDDI
Baboon TLR4    NIHKTCQLHLAGLVHRLILGEFKDERMLEIFEPSEMEGLCDVTDIDEFRLTYIYHDFSDDI
Human TLR4     NIHKTCQLHLAGLVHRLILGEFKDERMLEIFEPSEMEGLCDVTDIDEFRLTYIYHDFSDDI

House TLR4      VK-FHCLAHVSAHSLAGVSIKYLEVDPKHFQWQSLSIIRQLKQFPTLDLPLFKSLTLTM
Rat TLR4      VK-FHCLAHVSAHSLAGVSIKYLEVDPKHFQWQSLSIIRQLKQFPTLDLPLFKSLTLTM
Baboon TLR4    VK-FHCLAHVSAHSLAGVSIKYLEVDPKHFQWQSLSIIRQLKQFPTLDLPLFKSLTLTM
Human TLR4     VK-FHCLAHVSAHSLAGVSIKYLEVDPKHFQWQSLSIIRQLKQFPTLDLPLFKSLTLTM

House TLR4      NKGSISFKKVALPSSLYLDRHMLSFSGCCSYSDLGTMNSLHMLDSFNHAIHNSANPMG
Rat TLR4      NKGSISFKKVALPSSLYLDRHMLSFSGCCSYSDLGTMNSLHMLDSFNHAIHNSANPMG
Baboon TLR4    NKGSISFKKVALPSSLYLDRHMLSFSGCCSYSDLGTMNSLHMLDSFNHAIHNSANPMG
Human TLR4     NKGSISFKKVALPSSLYLDRHMLSFSGCCSYSDLGTMNSLHMLDSFNHAIHNSANPMG

House TLR4      LEELQHLDFQHSILKRVTEFSAFLSLEKLLYLDISYTHFKIDFDGIFLGLTSLNTHKMG
Rat TLR4      LEELQHLDFQHSILKRVTEFSAFLSLEKLLYLDISYTHFKIDFDGIFLGLTSLNTHKMG
Baboon TLR4    LEELQHLDFQHSILKRVTEFSAFLSLEKLLYLDISYTHFKIDFDGIFLGLTSLNTHKMG
Human TLR4     LEELQHLDFQHSILKRVTEFSAFLSLEKLLYLDISYTHFKIDFDGIFLGLTSLNTHKMG

House TLR4      NSFQDNLTSHVFAHTHMLTFLDLSCQLEQISWGVDFTLHRLQLLHMSHNNLLFLDSHY
Rat TLR4      NSFQDNLTSHVFAHTHMLTFLDLSCQLEQISWGVDFTLHRLQLLHMSHNNLLFLDSHY
Baboon TLR4    NSFQDNLTSHVFAHTHMLTFLDLSCQLEQISWGVDFTLHRLQLLHMSHNNLLFLDSHY
Human TLR4     NSFQDNLTSHVFAHTHMLTFLDLSCQLEQISWGVDFTLHRLQLLHMSHNNLLFLDSHY

House TLR4      NQLYSLSTLDLCSFNRIETSKG-ILQHPKSLAFVFNLTNMSVACICEYQELQWVKDQKMF
Rat TLR4      NQLYSLSTLDLCSFNRIETSKG-ILQHPKSLAFVFNLTNMSVACICEYQELQWVKDQKMF
Baboon TLR4    NQLYSLSTLDLCSFNRIETSKG-ILQHPKSLAFVFNLTNMSVACICEYQELQWVKDQKMF
Human TLR4     NQLYSLSTLDLCSFNRIETSKG-ILQHPKSLAFVFNLTNMSVACICEYQELQWVKDQKMF

House TLR4      LVHVEQHTCATPVEHNTSLVLDLNNSTCYHYKTIISVSVVSVVAVLVAFLIYHFIYHFI
Rat TLR4      LVHVEQHTCATPVEHNTSLVLDLNNSTCYHYKTIISVSVVSVVAVLVAFLIYHFIYHFI
Baboon TLR4    LVHVEQHTCATPVEHNTSLVLDLNNSTCYHYKTIISVSVVSVVAVLVAFLIYHFIYHFI
Human TLR4     LVHVEQHTCATPVEHNTSLVLDLNNSTCYHYKTIISVSVVSVVAVLVAFLIYHFIYHFI

House TLR4      LIAGCKKYSRGEIYDAFVIVYSQHEWVRLHMLVKNLEE GVPRFHLCLHYRDFIPGVAIA
Rat TLR4      LIAGCKKYSRGEIYDAFVIVYSQHEWVRLHMLVKNLEE GVPRFHLCLHYRDFIPGVAIA
Baboon TLR4    LIAGCKKYSRGEIYDAFVIVYSQHEWVRLHMLVKNLEE GVPRFHLCLHYRDFIPGVAIA
Human TLR4     LIAGCKKYSRGEIYDAFVIVYSQHEWVRLHMLVKNLEE GVPRFHLCLHYRDFIPGVAIA
    
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(B) MD2

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Macaca MD2      <-
Human MD2      MLPPLFFSFLFSFIETFAQKHVWCHSSDASISYTYCDKHQYFISINVHPCIKLKGSRGL
Mouse MD2      MLPPLFFSFLFSFIETFAQKHVWCHSSDASISYTYCDKHQYFISINVHPCIKLKGSRGL
Rat MD2        MLPPLFFSFLFSFIETFAQKHVWCHSSDASISYTYCDKHQYFISINVHPCIKLKGSRGL
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Macaca MD2      LHIFYIPRRLVKQLYFNLYITVHSMPLPKRKEVICRGSDDYSFCRALKGETVNTIVSFS
Human MD2      LHIFYIPRRLVKQLYFNLYITVHSMPLPKRKEVICRGSDDYSFCRALKGETVNTIVSFS
Mouse MD2      LHIFYIPRRLVKQLYFNLYITVHSMPLPKRKEVICRGSDDYSFCRALKGETVNTIVSFS
Rat MD2        LHIFYIPRRLVKQLYFNLYITVHSMPLPKRKEVICRGSDDYSFCRALKGETVNTIVSFS
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Macaca MD2      FKGIKFKSKGKYKCVVEAIGSPEEMLFCLEFDIIMQPNHN
Human MD2      FKGIKFKSKGKYKCVVEAIGSPEEMLFCLEFDIIMQPNHN
Mouse MD2      FKGIKFKSKGKYKCVVEAIGSPEEMLFCLEFDIIMQPNHN
Rat MD2        FKGIKFKSKGKYKCVVEAIGSPEEMLFCLEFDIIMQPNHN
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(C) SP-A

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Rat SP-A        MSLCSLAFITFLTVVAGIKCNVTDVCAQSPGIPGAPGHHGLPGRDGRDGVKGDPPGPGFM
Human SP-A      MSLCSLAFITFLTVVAGIKCNVTDVCAQSPGIPGAPGHHGLPGRDGRDGVKGDPPGPGFM
Baboon SP-A     MSLCSLAFITFLTVVAGIKCNVTDVCAQSPGIPGAPGHHGLPGRDGRDGVKGDPPGPGFM
Human SP-A      MSLCSLAFITFLTVVAGIKCNVTDVCAQSPGIPGAPGHHGLPGRDGRDGVKGDPPGPGFM
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Rat SP-A        GPPGHPGLPGRDGLP GAPGAP GERGDKGEP GERGLP GFPAYLDEELQTELVEIKHQILQ
Human SP-A      GPPGHPGLPGRDGLP GAPGAP GERGDKGEP GERGLP GFPAYLDEELQTELVEIKHQILQ
Baboon SP-A     GPPGHPGLPGRDGLP GAPGAP GERGDKGEP GERGLP GFPAYLDEELQTELVEIKHQILQ
Human SP-A      GPPGHPGLPGRDGLP GAPGAP GERGDKGEP GERGLP GFPAYLDEELQTELVEIKHQILQ
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Rat SP-A        THGVLSLQGSMLSVGDVDFSTHGQVWFDTIHEHC TRAGGHIAVPRPEENEAIASIAKK
Human SP-A      THGVLSLQGSMLSVGDVDFSTHGQVWFDTIHEHC TRAGGHIAVPRPEENEAIASIAKK
Baboon SP-A     THGVLSLQGSMLSVGDVDFSTHGQVWFDTIHEHC TRAGGHIAVPRPEENEAIASIAKK
Human SP-A      THGVLSLQGSMLSVGDVDFSTHGQVWFDTIHEHC TRAGGHIAVPRPEENEAIASIAKK
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Rat SP-A        YHNYVYLGMIEDQTPGDFHCLD GAVSYTHWYIPEPRGQKKEKVEHYTDGTHWDRGCLQ
Human SP-A      YHNYVYLGMIEDQTPGDFHCLD GAVSYTHWYIPEPRGQKKEKVEHYTDGTHWDRGCLQ
Baboon SP-A     YHNYVYLGMIEDQTPGDFHCLD GAVSYTHWYIPEPRGQKKEKVEHYTDGTHWDRGCLQ
Human SP-A      YHNYVYLGMIEDQTPGDFHCLD GAVSYTHWYIPEPRGQKKEKVEHYTDGTHWDRGCLQ
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Rat SP-A        YRLAVCEF
Human SP-A      YRLAVCEF
Baboon SP-A     YRLAVCEF
Human SP-A      SRLTICEF
    
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