C.carcharias LOC121276405 serum paraoxonasearylesterase 1like	
G.aculeatus LOC120810756 serum paraoxonasearylesterase 2like	$ \color{blue}{MAAMKKILAAAVVAAVA.VYICHRFLKIKEMCLASRELPV.K.HLNCHYLKNIEYCAEDITVLRDGLAFLSTGLKIFMPVP.ENTLVHLKTITHPLLHSVNDVVAVGVESFYATNHQAFANDVLSA.ATTLLCGFSWCDVIYYSPNEVRAAADGILSPNGINISPDKRYIYVSNIMCHAINVYERKEEEQLQYLK.AVAVGSLCDNIEVDHRTGDI$
S.townsendi LOC125441118 serum paraoxonasearylesterase 2like	M GKVLALALVGLVA.ALL GERLLRFRERMS ASHELKPKR.LPNCHLIKGIET GSEDID ILPNGLAFISSGLKYPGLPSF APDKRGQILLIDLNEQ.NPRPVEVRISR.GFJLSFVATNDHYFTGQYLMM.LEMFLGLTLTNVIYYSPKEVKEVASGFYSANGINISPDGQYVYVADVQGLNIHVFEKHANFSLTPLK.VLQLDTLVDNISVDPYTGDISPDGVASGFYSANGINISPDGQYVYVADVQGLNIHVFEKHANFSLTPLK.VLQLDTLVDNISVDPYTGDISPDGVASGFYSANGINISPDGGQYVVADVQGLNIHVFEKHANFSLTPLK.VLQLDTLVDNISVDPYTGDISPDGVASGFYSANGINISPDGGQYVVADVQGLNIHVFEKHANFSLTPLK.VLQLDTLVDNISVDPYTGDISPDGVASGFYSANGINISPDGGQYVVADVQGLNIHVFEKHANFSLTPLK.VLQLDTLVDNISVDPYTGDISPDGVASGFYSANGINISPDGGQYVVADVQGLNIHVFEKHANFSLTPLK.VLQLDTLVDNISVDPYTGDISPDGVASGFYSANGINISPDGGQYVVADVQGLNIHVFEKHANFSLTPLK.VLQLDTLVDNISVDPYTGDISPDGVASGFYSANGINISPDGGQYVVADVQGLNIHVFEKHANFSLTPLK.VLQLDTLVDNISVDPYTGDISPDGVASGFYSANGINISPDGGQYVVADVQGLNIHVFEKHANFSLTPLK.VLQLDTLVDNISVDPYTGDISPDGVASGFYSANGINISPDGGQYVVADVQGLNIHVFEKHANFSLTPLK.VLQLDTLVDNISVDPYTGDISPDGVASGFYSANGINISPDGGQYVADVQGLNIHVFEKHANFSLTPLK.VLQLDTLVDNISVDPYTGDISPDGASGFYSANGINISPDGGQYVADVQGLNIHVFEKHANFSLTPLK.VLQLDTLVDNISVDPYTGDISPDGASGFYSANGINISPDGGQTVANDATATATATATATATATATATATATATATATATATATA
H.sapiens PON2 serum paraoxonasearylesterase 2 isoform 2	$ ext{MGRLVAVGLLGIAL.ALL} GERLLALRNRLKASREVESVD.LPHCHLIKGIEAGSEDIDILPNGLAFFSVGLKFPGLHSFAPDKPGGILMMDLKEE.KPRARELRISR.GFDLASFNPHGISTFID.NDDTVYLFVVNHPE.FKNTVETFKFEEAENSLLHLKTVKHELLPSVNDITAVGPAHFYATNDHYFSDPFLKY.LETYLNLHWANVVYYSPNEVKVVAEGFDSANGINISPDDKYILVDNLSIDPSSGDI$
F.catus PON3 serum paraoxonaselactonase 3	MGKLVVLTLLGAVL.ALIGERLVAFRQRMNASRAVEPVD.LPNCHLIEGLENGSEDIDILPNGLAFISSGLKYPGMPNFASDEPGQIFLMDLTVVLYVVNHPH.MKSTVEKFKFEEQQRSLVHLKTIKHELLTSVNDI V VLGYEQFYATRDHYFTNFFLVL.LEMIMDLRWTYVLFYSPKEVKVVAKGFSSANGITVSLDKKYIVVADVLAQNVHVLNKRGNWDLTQVK.VIQLGTLVDNLT V DPDTGDI
H.sapiens PON3 serum paraoxonaselactonase 3	MGKLVALVLLGVGL. SLVGEMFLAFRERVNASREVEPVE. PENCHLIEELESGSEDIDILPSGLAFISSGLKYPGMPNFAPDEPGKIFLMDLNEQ. NPRAQALEISG. GFDKELFNPHGISIFID. KDNTVYLFYSPREVKVVAKGFCSANGITVSADQKYVYVADVÄAKNIHIMEKHDNWDLTQLK. VIQLGTLVDNLTVDPATGDI
G.gallus PON1 serum paraoxonasearylesterase 2 isoform X1	M
E.caballus PON3 serum paraoxonaselactonase 3	MGKLVLLTLLGAGL.ALIGERLVAIRQRTNASREVEPVE.PQNCHLVEGLGYGSEDIDVLPSGLAFISSGLKYPGMVNFGPDEPGQIFLMDLNEQ.NPRAQVLNISD.SFDKASFNPHGISTFMD.KDHTVYLFYSPREVKVVAKGFSSANGITISLDKKYIYVADILDKNIHVLKKHDNWDLTPLK.IMQLGTLVDNLTIDPDTGDI
F.catus PON2 serum paraoxonasearylesterase 2	M GRLVALSLLGIAL.ALLGERLLALRNRLKASREVESVD.LPNCHLIKGIEAGADDIDTLPNGLAFFSVGLKCPGLHSFSPDKPGGILMMDLKEE.NPRALELRISR.GFNLASFNPHGISTFID.RDDTVYLFVVNHPE.FKNTVEIFKFEEEENSLLHLKTIKHELLPSVNDITAVGYSPDEVKVVAEGFDAANGINISPDKKYTVADILAHEIHVLEKHPNMNLTQLK.VLKLDTLVDNLSIDPSSGDI
E.caballus PON2 serum paraoxonasearylesterase 2	$ ext{M}$ CRLAALTILGIAL.ALLGERLLFRNRLKTSREIESLD.LPNCRLIKGIEAGSEDIDILPNGLAFFSVGLKFPGLHSFAPDKPGGILMMDLKEE.NPRALELRISR.GFNLASFNPHGISTFLKY.LETYLNLHWTNVVYSPNEVKVVAEGFDTANGINISPDKKYIYVADILAHEIHVLEKHPNMNLTHLK.VLELDTLVDNLSIDPSSGDI
C.carcharias LOC121276303 serum paraoxonasearylesterase 2like	MGKRVILALFTVIL.SVVAYRLVDLCNKMGVFRELDLVE.PGNCHLIKGIEHGSEDINILPGGLALISSGLKYPSLPMFDSDRPGQILLVDLNKP.TLTAVELRISR.GFDVESFNPHGLSTYID.EDGTVYVFVVNHPR.NITTVEVFMFEEDQNSLIHLKTIQHELLHSVNDIVALSSDSFYATNDHYFAHETLKT.LEFVLGFSWCSVVYYSPSEVKVAATGFRVANGINVSPDKR
C.mydas LOC102930790 serum paraoxonasearylesterase 2	${ t M} \ldots { t GKVLVL} { t ALL} { t GERL} { t ALL} { t GERL} { t MELR} { t RKLNGS} { t RELEPVE}. { t LPNCHLIKGIER} { t GSEDID} { t LPNCHLIKGIER} { t GSEDID} { t LVDNLSVDPYTGDI} { t CONTROL } { t CON$
H.sapiens PON1 serum paraoxonasearylesterase 1 precursor	$M\overline{AKL}$ IALTILGMGL. ALFRNHQSSYQTRLNALREVQPVE.LPNCNLVKGIETGSEDLEILPNGLAFISSGLKYPGIKSFNPNSPGKILLMDLNEE.DPTVLELGITGSKFDVSSFNPHGISTFTD. EDNAMYLLVVNHPD. AKSTVELFKFQEEKSLLHLKTIRHKLLPNLNDIVAVGPEHFYGTNDHYFLDPYLQS. WEMYLGLAWSYVVYYSPSEVRVVAEGFDFANGINISPDGKYVYIAELLAHKIHVYEKHANWTLTPLK.SLDFNTLVDNISVDPETGDI
E.caballus PON1 serum paraoxonasearylesterase 1	MGKMTVLSLLGLGL.AFFRDPWSSYQTRFNVFREVEPVE.LPNCNFVKGIEAGSEDLEILSNGLVFVSSGLKYPGLKSFEHDKPGKILLMNLNEE.EPTVLELRIIGSKFDLSFNPHGISTFTD.EDNTVYLLVVNHPD.FKSTVELFKFQEEKSLLHLKTIRHKLLPNMNDIVAVGPEHFYATNDHYFLDPFLKS.WELYLGLAWSNVYYSPNEVQMVADGYDFANGINISPDGKYVYVAELMAHKIHVYEKHANWTLTPLK.HLDFNTLVDNISVDPVTGDL
F.catus PON1 serum paraoxonasearylesterase 1 isoform X2	MAKLMVLTLLGLGL.ALFRDHRASYQARLNAFREVKPVE.LPNCNLVKGIESGSEDLEILPSGLAFISSGLKYPGIKSFEPDKPGKILLMDLNEE.DPTVLELKITGSKFDHSSFNPHGISTFTD.EDNTVYLLVVNHPD.FKSTVELFKFQEEKSLLHLKTIRHELLPNLNDIVAVGPEHFYATNDHYFVDHYLRS.WELYLGLAWSYVVYYSPTEVQVMADGFDFANGINISPDGKYVYIGELLAHKIHVYEKHANWTLTPLK.SLDFNTLVDNISVDPVTGDL
X.laevis pon2.L serum paraoxonasearylesterase 2	MGKLLKVTLIGILL.AFIGERIVQFCHRANAFRKVDPVDLLPNCQLLKGIEFGSEDIEILPNGLAFISSGLKYPGVMNFQPDKPGEIFLLDLNDE.KIRPVPLRISR.GFDFSTFNPHGMSTYIDPKDDTVYLFVVNHPL.YKTTIELFKFEEEENVLLHLKTIKHDLLWSANDIVAVGPESFYTTNDLYFTDFTMRQ.LEIFLGIAWSNVIYYSPTEVKQVSSGYYYANGIAMSTDNKYIYVADIMGHTIDLLEKQADWSLTPVK.VLKLDTLLDNLFVDPNTGDL
X.laevis pon2.S Serum paraoxonasearylesterase 2like precursor	$ ext{M}\text{GKL}$ LKVTLVGILL.AFVGERIVQFCHRANIFRKVDPVD.LPNCQLLKGIEFGSEDIEILPNGLAFISSGLKYPGVISFQPDKPGEIFLLDLNDE.KLQPVSLRFSR.GFDYSTFNPHGMSIYIDPKDDTVYLFVVNHPH.YKTTIELFKFEEEENVLLHLKTIKHDLLWSANDIVAVGPESFYATNDLYFTDFTMKH.LEMFLGIAWSNVVYYSPGEVKQVSSGYHCANGIAMSTDNKYIYVADVMGHTITMMEKQADWSLSPVK.VLQLDTLLDNLFVDPNTGDI
X.laevis LOC108718843 serum paraoxonasearylesterase 2like	$ ext{M}$ GKLLKVTLIGILL. AFIGERIVQFCHRVNMNREVDPVD. LPNCQLVKGIEFGSEDIEILPNGLAFISSGLKFPGVMSLQPDKPSIIFLLDLNDE. KLRPVSLRLSR. GFDVSTFNPHGMSTYIDPKDDTVYLFVVNHPQ. YKTTIELFKFEEEENALLHLKTIEHDLLWSINDIVAVGPESFYATNDLYFTDFTMKQ. LEILLGIAWSNVYYSPTEVKQVSSGYYYANGIAMSTDNKYIYVADIMGHTIDILEKQADWSLTPVK. VLQLDSLVDNLFVDPNTGDI
S.salar LOC106605980 serum paraoxonasearylesterase 2	MKWVLVT.ICIAALAALLGQRLLQLSEIVLANREAPVKR.LPNCHLLKNIEYGAEDITILRDGLAIISTGLKYPGMPSFS.DDPGKIYTLDLLDP.RLIPVELTIKG.DLDRDSFNPHGISVYIDETDKTIHLFVVNHPQHYTSQVEIFLFVEEDNTIVHLKTIKHDLLHSVNDIVAVGVESFYATNDHSYPSEALHM.LAVFLGLPWADVVYYSPGGVKAVGDGFLSANGINMSPDKRYLYVSAILDHEIAVFEIKKNKDLVHVK.SVAVGSLCDNIEVDHVTGDI
S.salar LOC106598067 serum paraoxonasearylesterase 2	$ ext{M}$ KWVLVT.ICIAALAALLGQRLLQLSEIALANREVPVKR.LPNCHLLKNIEYGAEDLTILRDGLAIISTGLKYPGMPSFS.DDPGKIYTLDLLDP.RLIPVELTIKG.DLDRDSFNPHGISVYIDETDKTIHLFVVNHPQHYTSQVEIFLFVEEDNTIVHLKTIKHDLLHSVNDIVAVGVESFYATNDHSYPSEALHM.LAVFLGLPWADVVYYSPGGVKAVGDLFVDHVK.SVAVGSLCDNIEVDHVTGDI
S.salar pon2 serum paraoxonasearylesterase 2 precursor	MGKLVVISLFVAALSAF V GERVINLRRRTLASRKLVQTH.LPNCHPIKSLEYGSEDLTILPNGLAIISTGLKDPVLPSYS.DAPGKMYTLDMSEDSRMKPVELRMGR.GFDLESFNPHGISVYTDETDNSVYLFVVNHPQ.QKTQVEIFLFVEEDHSLVYVKTIKHEFLHSVNDIVAVGVESFYATNDHYFGGGTLNT.LEILLAQPWSNVVYYSPEEVKVVAEGFYMANGINISPDKRHIYVADLFDHNIHVLERLESNGLAPVK.VVEVGSLVDNIYVDPETGDI
S.salar LOC123727864 serum paraoxonasearylesterase 2like isoform	${f v}$
G.aculeatus LOC120810607 serum paraoxonasearylesterase 2like	M GKVALISLVVAALAALLGERILSFRKRTLASRELVKNH.LPNCVALKNLDSGSNDITILGNGLAFISTGLKFVGLPSA $\overline{ ext{NTIGKIYTLDMNDP}}$. $\overline{ ext{RMKHLYVADLFDHNVHVLEVEDDNALVSVK}}$. $\overline{ ext{AVSVDSLCDNVEVDPETGDL}}$
D.rerio pon2 serum paraoxonasearylesterase 2	MGTLAFLSLAVVAFAVLIGERLISLRHVALSYRELTQNY.LPNCNFIEGIDFGAEDITIL.DGLAFLSTGLKYPGVPSYS.EDPGKIYTLNLLDS.EQKIKVLHIRG.DFDKDSFNPHGISVYTDDKDGAIYLFVVNHPQ.GKSQVEIFRFLENENALEYLKTIRHELLHNVNDIVAVGTESFYATNDHYFTNDILKI.VEPFLSLPWCDVVYYSPETVQVVAGGFLSANGINISPDKRHLYVSHILKHTIAVLEIQKNTVLSHVK.EIDVGSLCDNIEVDRETGDI
D.rerio pon1 serum paraoxonasearylesterase 1	M GKLAVLSLAVVALAVFIGERLVTLRHVALSYRELTQNY.LPNCHLIKGIECGSEDITIIDDGLAFLSTGVKAPGLPFCS.DDPGKIYTLNLLDS.EPKIKALSIKG.DFDQDTFNPHGISVYTDDKDGTMYLFVINHPR.GNSQVEIFEFVKDEHALKYIKTIEHELLHSVNDIVAVGTESFYATNDHYFSNEILKI.VENFFTLPWCDVIYYSPETVQVVADGFLLANGINLSLDKRYLYVSDVLKHTVTVLEIKKNTVLSRVK.EINVGSLADNIELDRESGDI
D.rerio pon3.2 serum paraoxonaselactonase 32	MGKLAVLSLVAVALAVFIGERIGSFRHLMLSYRELTKNY.LSNCQLITGVEFGAEDITILEDGLAFLSTGLKYPGVPYYS. EDPGKIYTLNLLDF.KPKIESLSIKG.DFDKDGFNPHGISVYIDDKDGAIYLFVVNHPQ.GKSQVEIFRFVNHENALKHIKTIKHELLHSVNDIVAVGTESFYATNDHYFTNDILKS. ELLFSLPWCDVVYYSPETVQVVAGGFLFANGINISPNKRHLYVSNLMKHKITVLEIQKTTELSHVK.EVDVGSLCDNIEVDRESGDI
D.rerio pon3.1 serum paraoxonaselactonase 31	MGKLAVLSLVAVALAVFIGERLGTLRHLTLSHRELTKNY.LPNCQLIKGIEFGAEDITILEDGLAFLSTGLKYPGLPSYS.EDPGKIYTLNLLDF.KPKIESLSVKG.DFDKDGAIYLFVVNHPQ.GKSQVEIFRFFDHENALKHIKTIKHELLHSVNDIVAVGTESFYATNDHYFTNDILKS.LELLFSLPWCDVVYYSPETVQVVAGGFLSANGINISPNKRHLYVSNIMKHKITVLEIQKTTELSHVK.EVDVGSLCDNIEVDRESGDI
consensus	* *

f X non-conserved f X $\geq 50\%$ conserved