Red dotted lines in the tree indicate paraphyletic relationships • The tree background color indicates the presence of the proteins with the corresponding color according to our hypotheses. • The red-to-white background of the table indicates a heuristic reliability of the results, where a brighter color indicates a higher reliability. This is calculated using the number of fully sequenced genomes, the number of species in the phylum and the number of protein sequences available for that phylum • The numbers in the table denote the number of: orthologs found (black), P = paralogs found, ? = homologs found, whose relationship could not be programmatically determined, Σ = total homologs found. # animal # se- # compl. # unique blasthits PDGF-B VEGF-B186 **VEGF-F** PDGF-A PDGF-C **PDGF-D** PIGF-1 VEGF-A121 VEGF-A165 VEGF-A206 VEGF-B167 **VEGF-C VEGF-D** species quences genomes (excl. false pos.) ctenophora (comb jellies) 0 P0, ?3, ∑3 1 P0, ?7, ∑8 0 P1, ?1, ∑2 - 1372 34k 11 (11) porifera (sponges) 36k placozoa P6, ?4, ∑10 1 P3, ?1, ∑5 0 P1, ?0, ∑1 0 P2, ?1, ∑3 0 P6, ?7, ∑13 1 P7, ?13, ∑21 o P6, ?9, ∑15 o P18, ?61, ∑79 o P6, ?0, ∑6 11 P1, ?43, ∑55 0 P7, ?19, ∑26 o P3, ?2, ∑5 94 (94) cnidaria (medusae/polyps) 1 (0) 925 xenacoelomorpha 3 P2, ?7, ∑12 3 P3, ?11, ∑17 3 P2, ?7, ∑12 2 P8, ?12, ∑22 P5, ?1, ∑6 0 P5, ?0, ∑5 0 P11, ?1, ∑12 P12, ?1, ∑13 P9, ?3, ∑12 0 P10, ?9, ∑19 0 P10, ?8, ∑18 1 P9, ?7, ∑17 0 P7, ?3, ∑10 42 (42) - 1793 136k echinodermata 0 P2, ?0, ∑2 0 P2, ?0, ∑2 0 P1, ?1, ∑2 0 P1, ?1, ∑2 0 P1, ?1, ∑2 0 P2, ?1, ∑3 0 P2, ?1, ∑3 2 P1, ?1, ∑4 0 P3, ?1, ∑4 0 P2, ?0, ∑2 0 P2, ?0, ∑2 23k hemichordata (acorn wormws) 9 (6) P6, ?1, ∑7 0 P6, ?1, ∑7 0 P5, ?1, ∑6 0 P5, ?0, ∑5 1 P5, ?1, ∑7 0 P6, ?1, ∑7 6 P1, ?5, ∑12 o P6, ?1, ∑7 P5, ?1, ∑6 1 P5, ?1, ∑7 P5, ?1, ∑7 o P6, ?2, ∑8 o P6, ?1, ∑7 95k 20 (19) cephalochordata (lancelets) P1, ?0, ∑1 0 P1, ?0, ∑1 0 P1, ?0, ∑1 1 P0, ?0, ∑1 1 P0, ?0, ∑1 P0, ?0, ∑1 0 P1, $?0, \Sigma 1$ 0 P1, ?0, ∑1 0 P1, ?0, ∑1 0 P1, ?0, ∑1 0 P1, ?0, ∑1 2 (1) tunicata cyclostomata (hagfish/lamprey) 0 P25, ?0, ∑25 2 P25, ?0, ∑27 2 P18, ?0, ∑20 P11, ?0, ∑13 11 P14, ?0, ∑25 2 P26, ?0, ∑28 0 P25, ?0, ∑25 6 P21, ?0, ∑27 11 P14, ?0, ∑25 11 P13, ?0, ∑24 0 P29, ?0, ∑29 0 P29, ?1, ∑30 6 P23, ?0, ∑29 52 (52) chondrichthyes (cartilaginous fishes) 30 P1054, ?169, ∑1253 217 P665, ?170, ∑1052 117 P282, ?15, **∑**414 102 P882, ?159, ∑1143 426 P811, ?209, ∑1446 430 P462, ?137, ∑1029 433 P463, ?130, ∑1026 59 P1041, ?154, ∑1254 58 P1161, ?173, ∑1392 175 P1034, ?141, ∑1350 102 P1012, ?136, ∑1250 2134 27 P863, ?170, ∑1060 148 P269, ?9, ∑426 actinopterygii (ray-finned fishes) 2 P12, ?0, ∑14 P4, ?0, ∑6 2 P12, ?0, ∑14 3 P12, ?0, ∑15 3 P11, ?0, ∑14 3 P11, ?0, ∑14 3 P14, ?0, ∑17 3 P14, ?1, ∑18 2 P15, ?0, ∑17 1 P16, ?0, ∑17 P15, ?0, ∑16 1 P12, ?0, ∑13 0 P14, ?0, ∑14 31 (31) coelacanthimorpha (lobe-finned fishes) 0 P4, ?0, Σ4 P3, ?0, ∑4 P3, ?0, ∑4 0 P4, ?0, Σ 4 P4, ?0, Σ 4 2 P2, ?0, ∑4 2 P2, ?0, ∑4 0 P4, ?0, ∑4 0 P4, ?0, ∑4 o P4, ?0, Σ4 o P4, ?2, ∑6 0 P4, ?0, Σ4 10 (10) dipnoi (lungfishes) 16 P59, ?1, ∑76 3 P73, ?1, ∑77 5 P71, ?1, ∑77 6 P72, ?1, ∑79 12 P62, ?1, ∑75 6 P54, ?0, ∑60 P17, ?0, ∑22 0 P66, ?1, ∑67 27 P38, ?1, ∑66 27 P30, ?1, ∑58 27 P33, ?1, ∑61 3 P69, ?1, ∑73 o P68, ?1, ∑69 amphibia 144 (144) 127 P340, ?5, ∑472 118 P461, ?5, ∑584 98 P452, ?2, ∑552 154 P316, ?0, ∑470 109 P463, ?4, ∑576 140 P390, ?9, ∑539 141 P329, ?5, ∑475 141 P329, ?5, ∑475 o P672, ?8, ∑680 0 P764, ?8, ∑772 130 P704, ?4, ∑838 96 P707, ?4, ∑807 1 P729, ?8, ∑738 **─**○ 9456 951 P14, ?0, ∑15 4 P35, ?0, ∑39 P21, ?0, ∑27 P46, ?0, ∑53 17 P40, ?0, ∑57 17 P35, ?0, ∑52 17 P29, ?0, ∑46 0 P57, ?0, ∑57 0 P63, ?0, ∑63 9 P54, ?0, ∑63 8 P55, ?0, ∑63 o P53, ?0, ∑53 102 (102) P26, ?0, ∑31 **└**○ 24 crocodylia (crocodiles) 26 P22, ?1, ∑49 2 P54, ?0, ∑56 2 P59, ?0, ∑61 7 P56, ?1, ∑64 5 P57, ?0, ∑62 P52, ?0, ∑55 6 P45, ?0, ∑51 3 P38, ?1, ∑42 P18, ?0, ∑23 P46, ?1, ∑53 26 P31, ?1, ∑58 26 P26, ?1, ∑53 4 P48, ?0, ∑52 --- 3234 66 (66) lepidosauria excl. toxicofera (non-poisonous lizards) 3 2 P119, ?23, ∑144 P89, ?0, ∑98 14 P91, ?28, ∑133 9 P113, ?0, ∑122 11 P26, ?0, ∑37 53 P63, ?29, ∑145 53 P43, ?29, ∑125 53 P45, ?28, ∑126 7 P109, ?26, ∑142 7 P120, ?26, ∑153 11 P108, ?26, ∑145 24 P107, ?5, ∑136 12 P122, ?0, ∑134 --- 3786 161 (161) toxicofera (poisonous reptiles) 30 P48, ?1, ∑79 30 P36, ?1, ∑67 P65, ?1, ∑75 P66, ?1, ∑75 P60, ?7, ∑74 17 P20, ?0, ∑37 10 P61, ?1, ∑72 30 P52, ?4, ∑86 8 P65, ?1, ∑74 8 P88, ?2, ∑98 6 P91, ?2, ∑99 5 P92, ?1, ∑98 o P70, ?1, ∑71 testudines (turtles) P6, ?0, ∑7 1 P5, ?0, ∑6 3 P10, ?0, ∑13 P10, ?0, ∑13 1 P5, ?0, ∑6 1 P6, ?0, ∑7 1 P6, ?0, ∑7 P6, ?0, ∑7 o P8, ?0, ∑8 0 P8, ?0, ∑8 2 P6, ?0, ∑8 1 P7, ?0, ∑8 o P6, ?0, ∑6 25 (25) 26k monotremata (egg-laying mammals) 5 P36, ?0, ∑41 4 P33, ?0, ∑37 10 P16, ?0, ∑26 4 P25, ?0, ∑29 4 P28, ?0, ∑32 4 P22, ?0, ∑26 4 P22, ?0, ∑26 4 P32, ?0, ∑36 4 P36, ?0, ∑40 4 P35, ?0, ∑39 5 P34, ?0, ∑39 ____333 88 (88) P36, ?0, ∑43 o P39, ?0, ∑39 metatheria (marsupials) 142k 261 P1262, ?9, ∑1532 440 P862, ?6, ∑1308 o P1596, ?10, ∑1606 223 P892, ?13, ∑1128 218 P659, ?1, ∑878 235 P417, ?0, ∑652 434 P900, ?6, ∑1340 440 P857, ?6, ∑1303 249 P1420, ?11, ∑1680 249 P1504, ?10, ∑1763 171 P1406, ?9, ∑1586 164 P1601, ?9, ∑1774 247 P762, ?6, ∑1015 4774 181 **2995** eutheria (placentals) 0 P3, ?1, ∑4 o P2, ?0, ∑2 o P2, ?0, ∑2 o Po, ?4, ∑4 o Po, ?6, ∑6 0 P0, ?3, ∑3 0 P4, ?0, ∑4 o P3, ?1, ∑4 0 P2, ?2, ∑4 o P4, ?0, ∑4 0 P1, ?3, ∑4 0 P1, ?0, ∑1 o P2, ?1, ∑3 9 (9) tardigrada (water bears) onychophora (velvet worms) pycnogonida (sea spiders) - 195 2k 0 10016 646k 27 103 (103) P20, ?3, ∑25 0 P20, ?3, ∑23 0 P21, ?5, ∑26 0 P9, ?2, ∑11 2 P24, ?39, ∑65 14 P5, ?22, ∑41 14 P5, ?20, ∑39 13 P5, ?16, ∑34 0 P25, ?13, ∑38 0 P24, ?11, ∑35 1 P16, ?16, ∑33 1 P14, ?2, ∑17 1 P26, ?30, ∑57 arachnida (spiders) o P6, ?1, ∑7 P6, ?3, ∑9 0 P7, ?3, ∑10 0 P3, ?2, ∑5 0 P7, ?20, ∑27 7 P0, ?11, ∑18 7 P0, ?11, ∑18 7 P0, ?11, ∑18 0 P7, ?11, ∑18 0 P7, ?11, ∑18 0 P7, ?4, ∑11 o P7, ?11, ∑18 41 (41) xiphosura (horseshoe crabs) 0 P2, ?0, ∑2 39k 1 978 7k 1 1 (0) myriapoda (millipeds) **e** crustacea 4 P4, ?8, ∑16 1 P8, ?13, ∑22 10984 947k 25 53 (53) P10, ?8, ∑18 0 P11, ?4, ∑15 1 P4, ?3, ∑8 0 P1, ?8, ∑9 0 P5, ?7, ∑12 5 P4, ?11, ∑20 5 P4, ?12, ∑21 1 P9, ?19, ∑29 1 P6, ?19, ∑26 1 P6, ?8, ∑15 1 P7, ?9, ∑17 49 P53, ?154, ∑256 59 P61, ?198, ∑318 16 P18, ?98, ∑132 2 P36, ?55, ∑93 hexapoda (insects) 3 P89, ?113, ∑205 P42, ?34, ∑77 P23, ?16, ∑41 P52, ?141, ∑196 39 P45, ?129, ∑213 P110, ?177, ∑292 5 P94, ?156, ∑255 3 P95, ?236, ∑334 - 114367 7M 339 **618** 20 P77, ?117, ∑214 30 368 nematomorpha (horsehair worms) ___O.. 100 44 (44) P0, ?35, ∑35 0 P0, ?11, ∑11 0 P1, ?22, ∑23 0 P0, ?21, ∑21 0 P0, ?4, ∑4 0 P0, ?2, ∑2 o Po, ?24, ∑24 3503 2M nematoda (roundworms) 1 P0, ?0, ∑1 0 P1, ?0, ∑1 7 21k 1 8(1) priapulida (penis worms) loricifera 436 kinorhyncha (mud dragons) - 56 2k chaetognatha (arrow worms) ____ 1 (0) bryozoa (moss animals) 26 155 2 (0) entoprocta ____ 278 cycliophora (symbion) 0 P0, ?3, ∑3 0 P2, ?2, ∑4 0 P1, ?1, ∑2 0 P1, ?1, ∑2 0 P1, ?2, ∑3 0 P0, ?3, ∑3 0 P0, ?3, ∑3 0 P0, ?3, ∑3 0 P1, ?2, ∑3 0 P1, ?1, ∑2 0 P0, ?2, ∑2 0 P1, ?1, ∑2 0 P1, ?2, ∑3 8 (7) 3330 129k 5 annelida (segmented worms) mollusca P4, ?6, ∑10 0 P8, ?0, ∑8 o P4, ?4, ∑8 0 P1, ?4, ∑5 0 P2, ?1, ∑3 2 P2, ?9, ∑13 2 P2, ?9, ∑13 2 P2, ?5, ∑9 o P9, ?6, ∑15 o P4, ?6, ∑10 0 P1, ?15, ∑16 0 P7, ?4, ∑11 14174 742k 26 38 (38) o P8, ?4, ∑12 nemertea (ribbon worms) - 262 5k 1 **0** 100 42k 1 6(2) brachiopoda (lamp shells) 0 P1, ?0, ∑1 0 P1, ?0, ∑1 0 P1, ?0, ∑1 0 P1, ?0, ∑1 1 P0, ?0, ∑1 0 P1, ?0, ∑1 j phoroniformea (horseshoe worms) 14 165 1 ______ gastrotricha (hairybacks) - 130 389 0 **0** 4462 561k 26 1 (0) platyhelminthes (flatworms) - 21 79 0 **0** gnathostomulida (jaw worms) micrognathozoa 0 P1, ?0, ∑1 rotifera (wheel animals) P0, ?0, ∑1 0 P1, $?0, \Sigma 1$ 0 P1, $?0, \Sigma 1$ 0 P1, $?0, \Sigma 1$ 237 64k 6 6 (2) L_O..... -- 4 9k 1 1 (0) orthonectida dicyemida - 24 150 0 **0**

• Analyzed sequences (hits resulting from 676 blast searches, 52 animal groups x 13 query sequences):47443 (out of which unique: 8066, programmatically recognized as VEGF/PDGF family members: 90.1%).

Analysis performed: 190728_211827

Force topology is enabled!