Analysis performed: 190802\_094312
Analyzed sequences (hits resulting from 676 blast searches, 52 animal groups x 13 query sequences):49992 (out of which unique: 8666, programmatically recognized as VEGF/PDGF family members: 90.5%).
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

o P1, ?2, ∑3

0 P1, ?0, ∑1

|   | • The red-to-white background of the table indicates a heuristic 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, whose relationship could not be programmatically determined, ∑ = total homologs found. |                      |                             |                        |                         |                         |                         |                       |                       |                        |                        |                         |                       |  |
|---|--|----------------------|-----------------------------|------------------------|-------------------------|-------------------------|-------------------------|-----------------------|-----------------------|------------------------|------------------------|-------------------------|-----------------------|--|
| # animal # se- # compl. # unique blasthits                  | PDGF-A   | PDGF-B               | PDGF-C                      | PDGF-D                 | PIGF-1                  | VEGF-A121               | VEGF-A165               | VEGF-A206             | VEGF-B167             | VEGF-B186              | VEGF-C                 | VEGF-D                  | VEGF-F                |  |
| species quences genomes (excl. false pos.)  55 6 3 0        |  |                      |                             |                        |                         |                         |                         |                       | 7101 2107             | 710. 5100              |                        |                         |                       |  |
| 1372 34k 2 11 (0)   |  |                      |                             |                        |                         |                         |                         |                       |                       |                        | 1 P0, ?7, ∑8           | 0 P1, ?1, ∑2            | 0 P0, ?3, ∑3          |  |
|   |  |                      |                             |                        |                         |                         |                         |                       |                       |                        |                        |                         |                       |  |
| 3671 115k 18 94 (83)  | 0 P6, ?4, ∑10  | 1 P3, ?1, ∑5         | 0 P1, ?0, ∑1                |                        | 0 P2, ?1, ∑3            | 0 P6, ?7, ∑13           | 1 P7, ?13, ∑21          | 0 P6, ?9, ∑15         | 0 P18, ?61, ∑79       | 0 P6, ?0, <u>Σ</u> 6   | 11 P1, ?43, ∑55        | 0 P7, ?19, ∑26          | 0 P3, ?2, ∑5          |  |
|   |  |                      |                             |                        |                         |                         |                         |                       |                       |                        |                        | 0 P0, ?1, ∑1            |                       |  |
| 1793 136k 11 42 (40) $\bigstar$ echinodermata               | 0 P5, ?1, ∑6   | 0 P5, ?0, ∑5         | 0 P11, ?1, ∑12              | 0 P12, ?1, ∑13         | 0 P9, ?3, ∑12           | 3 P2, ?7, ∑12           | 3 P3, ?11, ∑17          | 3 P2, ?7, ∑12         | 0 P10, ?9, ∑19        | 0 P10, ?8, ∑18         | 2 P8, ?12, ∑22         | 1 P9, ?7, ∑17           | 0 P7, ?3, ∑10         |  |
| 39 23k 2 9 (6)  hemichordata (acorn wormws)                 | 0 P2, ?0, ∑2   | 0 P2, ?0, ∑2         | 0 P2, ?1, ∑3                | 0 P2, ?0, ∑2           | 0 P1, ?0, ∑1            | 0 P1, ?2, ∑3            | 0 P1, ?1, ∑2            | 0 P1, ?1, ∑2          | 0 P2, ?1, ∑3          | 0 P2, ?2, <u>Σ</u> 4   | 2 P1, ?1, ∑4           | 0 P3, ?1, ∑4            | 0 P2, ?0, <u>Σ</u> 2  |  |
| 11 95k 4 20 (14) cephalochordata (lancelets)                | 0 P6, ?1, ∑7   | o P6, ?1, ∑7         | o P5, ?1, ∑6                | 0 P5, ?1, ∑6           | 0 P5, ?0, ∑5            | 1 P5, ?1, ∑7            | 1 P5, ?1, ∑7            | 1 P5, ?1, ∑7          | 0 P6, ?2, ∑8          | o P6, ?1, ∑7           | 6 P1, ?6, ∑13          | o P6, ?1, ∑7            | 0 P6, ?1, ∑7          |  |
| 361 64k 6 2 (1) <b>**</b> tunicata                          | 0 P1, ?0, ∑1   | 0 P1, ?0, ∑1         |                             |                        | 0 P1, ?1, ∑2            | 1 P0, ?0, ∑1            | 1 P0, ?0, ∑1            | 1 PO, ?0, ∑1          | 0 P1, ?0, ∑1          | 0 P1, ?0, ∑1           | 0 P1, ?0, ∑1           | 0 P1, ?0, ∑1            | 0 P1, ?0, ∑1          |  |
| cyclostomata (hagfish/lamprey)                              |  |                      |                             |                        |                         |                         |                         |                       |                       |                        |                        |                         |                       |  |
| chondrichthyes (cartilaginous fishes)                       | 6 P21, ?0, ∑27   | 2 P25, ?0, ∑27       | 2 P18, ?0, ∑20              | 2 P11, ?0, ∑13         | 0 P25, ?0, <u>∑</u> 25  | 11 P14, ?0, ∑25         | 11 P14, ?0, ∑25         | 11 P13, ?0, ∑24       | 0 P29, ?0, ∑29        | 0 P29, ?1, ∑30         | 6 P23, ?0, ∑29         | 2 P26, ?0, <u>∑</u> 28  | 0 P25, ?0, ∑25        |  |
| 19071 2M 186 2134 (n.a.) actinopterygii (ray-finned fishes) | 217 P665, ?170, ∑1052  | 27 P863, ?170, ∑1060 | 117 P282, ?15, <u>∑</u> 414 | 148 P269, ?9, ∑426     | 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  | 30 P1054, ?169, ∑1253 |  |
| coelacanthimorpha (lobe-finned fishes)                      | 1 P15, ?0, ∑16   | 2 P12, ?0, ∑14       | 1 P12, ?0, ∑13              | 2 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          | o P14, ?0, ∑14        |  |
| 6 1k 0 10 (10) — dipnoi (lungfishes)                        | 1 P3, ?0, ∑4   | 1 P3, ?0, ∑4         | o P4, ?0, <u>Σ</u> 4        | o P4, 70, ∑4           | O P4, ?0, Σ4            | 2 P2, ?0, <u>Σ</u> 4    | 2 P2, ?0, Σ4            |                       | 0 P4, ?0, <u>Σ</u> 4  | o P4, ?0, Σ4           | o P4, ?0, <u>Σ</u> 4   | o P4, ?0, ∑4            | o P4, ?2, <u>Σ</u> 6  |  |
| 5694 478k 6 144 (144) amphibia                              | 16 P59, ?1, ∑76  | 12 P62, ?1, ∑75      | 6 P54, ?0, ∑60              | 5 P17, ?0, <u>∑</u> 22 | 0 P66, ?1, ∑67          | 27 P38, ?1, ∑66         | 27 P30, ?1, ∑58         | 27 P33, ?1, ∑61       | 3 P69, ?1, ∑73        | 3 P73, ?1, ∑77         | 5 P71, ?1, ∑77         | 6 P72, ?1, ∑79          | o P68, ?1, ∑69        |  |
| 9456 3M 132 1551 (n.a.)                                     | 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      | o P764, ?8, ∑772       | 130 P704, ?4, ∑838     | 96 P707, ?4, ∑807       | 1 P729, ?8, ∑738      |  |
| 24 179k 4 102 (102) crocodylia (crocodiles)                 | 5 P26, ?0, ∑31   | 1 P14, ?0, ∑15       | 4 P35, ?0, ∑39              | 6 P21, ?0, <u>∑</u> 27 | 7 P46, ?0, ∑53          | 17 P40, ?0, ∑57         | 17 P35, ?0, ∑52         | 17 P29, ?0, ∑46       | o P57, ?0, ∑57        | o P63, ?0, ∑63         | 9 P54, ?0, <u>∑</u> 63 | 8 P55, ?0, ∑63          | 0 P53, ?0, ∑53        |  |
| lepidosauria excl. toxicofera (non-poisonous lizards)       | 3 P52, ?0, ∑55   | 6 P45, ?0, ∑51       | 3 P38, ?1, ∑42              | 5 P18, ?0, ∑23         | 6 P46, ?1, ∑53          | 26 P31, ?1, ∑58         | 26 P26, ?1, ∑53         | 26 P22, ?1, ∑49       | 2 P54, ?0, ∑56        | 2 P59, ?0, <u>∑</u> 61 | 7 P56, ?1, ∑64         | 5 P57, ?0, <u>∑</u> 62  | 4 P48, ?0, ∑52        |  |
| 3787 467k 15 161 (161)                                      | 12 P122, ?0, ∑134  | 9 P113, ?0, ∑122     | 9 P89, ?0, ∑98              | 11 P26, ?0, ∑37        | 14 P91, ?28, ∑133       | 53 P63, ?29, ∑145       | 53 P43, ?29, ∑125       | 53 P45, ?28, ∑126     | 7 P109, ?26, ∑142     | 7 P120, ?26, ∑153      | 11 P108, ?26, ∑145     | 2 P119, ?23, ∑144       | 24 P107, ?5, ∑136     |  |
| 358 184k 10 188 (188) testudines (turtles)                  | 9 P65, ?1, ∑75   | 8 P66, ?1, ∑75       | 7 P60, ?7, ∑74              | 17 P20, ?0, ∑37        | 10 P61, ?1, ∑72         | 30 P48, ?1, ∑79         | 30 P52, ?4, ∑86         | 30 P36, ?1, ∑67       | 8 P65, ?1, ∑74        | 8 P88, ?2, ∑98         | 6 P91, ?2, ∑99         | 5 P92, ?1, ∑98          | 0 P70, ?1, ∑71        |  |
| 5 26k 1 25 (25) monotremata (egg-laying mammals)            | 1 P6, ?0, ∑7   | 1 P5, ?0, ∑6         | 3 P10, ?0, ∑13              | 3 P10, ?0, ∑13         | 1 P5, ?0, ∑6            | 1 P6, ?0, ∑7            | 1 P6, ?0, ∑7            | 1 P6, ?0, ∑7          | 0 P8, ?0, ∑8          | 0 P8, ?0, ∑8           | 2 P6, ?0, ∑8           | 1 P7, ?0, ∑8            | 0 P6, ?0, ∑6          |  |
| 333 142k 5 88 (88) metatheria (marsupials)                  | 7 P36, ?0, <u>∑</u> 43   | 5 P36, ?0, ∑41       | 4 P33, ?0, ∑37              | 10 P16, ?0, ∑26        | 4 P25, ?0, <u>∑</u> 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          | 0 P39, ?0, ∑39        |  |
| 4774 8M 181 2995 (n.a.) seutheria (placentals)              | 247 P762, ?6, ∑1015  | 223 P892, ?13, ∑1128 | 218 P659, ?1, ∑878          | 235 P417, ?0, ∑652     | 261 P1262, ?9, ∑1532    | 434 P900, ?6, ∑1340     | 440 P862, ?6, ∑1308     | 440 P857, ?6, ∑1303   | 249 P1420, ?11, ∑1680 | 249 P1504, ?10, ∑1763  | 171 P1406, ?9, ∑1586   | 164 P1601, ?9, ∑1774    | 0 P1596, ?10, ∑1606   |  |
| tardigrada (water bears)                                    | 0 P1, ?3, <u>Σ</u> 4   | 0 P3, ?1, <u>Σ</u> 4 | 0 P2, ?0, ∑2                | 0 P1, ?0, ∑1           | 0 P2, ?0, ∑2            | o Po, ?4, ∑4            | 0 P0, ?6, <u>Σ</u> 6    | 0 P0, ?3, ∑3          | o P4, ?0, ∑4          | o P3, ?1, ∑4           | 0 P2, ?2, ∑4           | o P4, ?0, ∑4            | 0 P2, ?1, ∑3          |  |
| onychophora (velvet worms)                                  |  |                      |                             |                        |                         |                         |                         |                       |                       |                        |                        |                         |                       |  |
| 195 2k 0 0 pycnogonida (sea spiders)                        |  |                      |                             |                        |                         |                         |                         |                       |                       |                        |                        |                         |                       |  |
| 10073 646k 27 103 (101)                                     | 2 P20, ?3, <u>∑</u> 25   | 0 P20, ?3, ∑23       | 0 P21, ?5, <u>∑</u> 26      | 0 P9, ?2, ∑11          | 2 P24, ?39, <u>∑</u> 65 | 14 P5, ?22, <u>∑</u> 41 | 14 P5, ?20, <b>∑</b> 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       |  |
| 5 39k 1 41 (31) xiphosura (horseshoe crabs)                 | 0 P6, ?3, ∑9   | o P6, ?1, ∑7         | o P7, ?3, ∑10               | 0 P3, ?2, ∑5           | o P7, ?20, <u>∑</u> 27  | 7 P0, ?11, ∑18          | 7 PO, ?11, ∑18          | 7 P0, ?11, ∑18        | 0 P7, ?11, ∑18        | o P7, ?11, ∑18         | o P7, ?4, ∑11          | 0 P2, ?0, ∑2            | 0 P7, ?11, ∑18        |  |
| 978 7k 1 1 (0) — myriapoda (millipeds)                      |  |                      |                             |                        |                         |                         |                         |                       |                       | 0 P0, ?1, Σ1           |                        |                         |                       |  |
| 10984 947k 25 53 (52) <b>***</b> crustacea                  | o P10, ?8, ∑18   | o P11, ?4, ∑15       | 1 P4, ?3, ∑8                | 0 P1, ?8, ∑9           | o P5, ?7, ∑12           | 5 P4, ?11, ∑20          | 5 P4, ?12, <b>∑</b> 21  | 4 P4, ?8, ∑16         | 1 P9, ?19, ∑29        | 1 P6, ?19, ∑26         | 1 P8, ?13, ∑22         | 1 P6, ?8, ∑15           | 1 P7, ?9, ∑17         |  |
| 114449 7M 339 618 (n.a.) hexapoda (insects)                 | 20 P77, ?117, ∑214   | 3 P89, ?113, ∑205    | 1 P42, ?34, ∑77             | 2 P23, ?16, ∑41        | 3 P52, ?141, ∑196       | 49 P53, ?154, ∑256      | 59 P61, ?198, ∑318      | 39 P45, ?129, ∑213    | 5 P110, ?177, ∑292    | 5 P94, ?156, ∑255      | 16 P18, ?98, ∑132      | 2 P36, ?55, <b>∑</b> 93 | 3 P95, ?236, ∑334     |  |
| nematomorpha (horsehair worms)                              |  |                      |                             |                        |                         |                         |                         |                       |                       |                        |                        |                         |                       |  |
| 3506 2M 100 44 (44) — nematoda (roundworms)                 | 0 P0, ?35, ∑35   | o PO, ?11, ∑11       |                             |                        |                         |                         |                         |                       | o P1, ?22, ∑23        | o PO, ?21, ∑21         | 0 P0, ?4, <u>Σ</u> 4   | 0 P0, ?2, ∑2            | o Po, ?24, ∑24        |  |
| priapulida (penis worms)                                    | 1 P0, ?0, ∑1   | o P1, ?7, ∑8         |                             |                        |                         |                         | 0 P1, ?0, ∑1            |                       | 0 P1, ?0, ∑1          | 0 P1, ?0, ∑1           | 0 P1, ?0, ∑1           |                         | 0 P1, ?0, ∑1          |  |
| 1 1 0 0 ioricifera  |  |                      |                             |                        |                         |                         |                         |                       |                       |                        |                        |                         |                       |  |
| 62 436 0 0 kinorhyncha (mud dragons)                        |  |                      |                             |                        |                         |                         |                         |                       |                       |                        |                        |                         |                       |  |
| chaetognatha (arrow worms)                                  |  |                      |                             |                        |                         |                         |                         |                       |                       |                        |                        |                         |                       |  |
| 325 3k 0 1 (0)  |  |                      |                             |                        |                         |                         |                         |                       |                       | 0 P0, ?1, ∑1           |                        |                         |                       |  |
|   |  |                      |                             |                        |                         |                         |                         |                       |                       | 0 P0, ?1, ∑1           |                        | 0 P0, ?1, ∑1            |                       |  |
| 2 278 0 0   |  |                      |                             |                        |                         |                         |                         |                       |                       |                        |                        |                         |                       |  |
| 3330 129k 5 8 (7) 🛴 annelida (segmented worms)              | 0 P0, ?3, ∑3   | 0 P2, ?2, <u>Σ</u> 4 | o 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, <u>Σ</u> 2   | 0 P0, ?3, <u>Σ</u> 3   | 0 P1, ?1, ∑2            | 0 P1, ?2, ∑3          |  |
|   | o P4, ?6, ∑10  | o 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          | 0 P9, ?6, ∑15         | 0 P4, ?6, ∑10          | 0 P1, ?15, ∑16         | o P7, ?4, ∑11           | 0 P8, ?4, ∑12         |  |
| nemertea (ribbon worms)                                     |  |                      |                             |                        |                         |                         |                         |                       |                       |                        |                        |                         |                       |  |
|   | o P1, ?0, ∑1   | 0 P1, ?0, ∑1         | o P0, ?1, ∑1                | o P1, ?0, ∑1           |                         | 0 P1, ?0, ∑1            | 0 P1, ?0, ∑1            | 0 P1, ?0, ∑1          | 0 P1, ?1, ∑2          | 0 P1, ?0, ∑1           | 0 P1, ?2, ∑3           | 1 P0, ?0, ∑1            | 0 P1, ?0, ∑1          |  |
| phoroniformea (horseshoe worms)                             |  |                      |                             |                        |                         |                         |                         |                       |                       |                        |                        |                         |                       |  |
| gastrotricha (hairybacks)                                   |  |                      |                             |                        |                         |                         |                         |                       |                       |                        |                        |                         |                       |  |
| gustrottiena (nairybacks)                                   |  |                      |                             |                        |                         |                         |                         |                       |                       |                        |                        |                         |                       |  |
| 4462 561k 26 1 (0) platyhelminthes (flatworms)              |  |                      |                             |                        |                         |                         |                         |                       |                       | 0 P0, ?1, ∑1           |                        |                         |                       |  |

0 P1, ?0, ∑1

0 P1, ?0, ∑1

0 P1, ?0, ∑1

0 P1, ?1, ∑2

0 P1, ?0, ∑1

0 P0, ?1, ∑1

Force topology is enabled!

\_\_\_\_1 2 0 **0** 

237 64k 6 **6 (2)** 

9k 1 1 (0)

24 150 0 **0** 

micrognathozoa

**orthonectida** 

dicyemida

rotifera (wheel animals)

1 P0, ?0, ∑1

0 P1, ?0, ∑1

0 P1, ?1, ∑2