

**Additional Table 2: Secreted proteins predicted from rESTs from *Dictyocaulus viviparus*.**

| Number | EST sequence ID | Residue | Start | SP | Description (top NR hit)                                                                          | E-value | % Identity (aa) | RNAi phenotype in <i>C. elegans</i>                                                                 |
|--------|-----------------|---------|-------|----|---------------------------------------------------------------------------------------------------|---------|-----------------|-----------------------------------------------------------------------------------------------------|
| 1      | DvContig8       | 222     | -     | 24 | secreted protein 5 precursor<br>[ <i>Ancylostoma caninum</i> ]                                    | 2E-12   | 60/201 (29%)    | None                                                                                                |
| 2      | DvContig13      | 407     | -     | 12 | Sperm-Specific family, class Q family<br>member (ssq-2) [ <i>Caenorhabditis elegans</i> ]         | 1E-22   | 156/234 (66%)   | locomotion abnormal (unc)                                                                           |
| 3      | DvContig16      | 416     | -     | 18 | Protein phosphatase 2A homologues<br>[ <i>Caenorhabditis elegans</i> ]                            | 8E-84   | 154/337 (45%)   | None                                                                                                |
| 4      | DvContig30:     | 144     | M     | 19 | Hypothetical protein CBG06429<br>[ <i>Caenorhabditis briggsae</i> ]                               | 2E-14   | 6/85 (42%)      | None                                                                                                |
| 5      | DvContig38      | 190     | -     | 24 | calumenin-like protein [ <i>Caenorhabditis elegans</i> ]                                          | 2E-71   | 140/173 (80%)   | locomotion abnormal (unc)molt defect (Mlt)larval lethal (Let)larval arrest (Lva)clear (Clr)         |
| 6      | DvContig39      | 172     | M     | 20 | emp24/gp25L/p24 family of membrane<br>trafficking<br>proteins] [ <i>Caenorhabditis briggsae</i> ] | 5E-52   | 96/140 (68%)    | None                                                                                                |
| 7      | DvContig76      | 357     | -     | 20 | [Peptidylglycine alpha-amidating<br>monooxygenase]<br>[ <i>Caenorhabditis elegans</i> ]           | 2E-107  | 177/297 (59%)   | None                                                                                                |
| 8      | DvContig91      | 289     | -     | 17 | inorganic PYroPhosphatase family<br>member (pyp-1)                                                | 1E-99   | 171/246 (69%)   | embryonic lethal (Let)maternal sterile (Ste)larval lethal (Let)larval arrest (Lva)slow growth (Gro) |

|    |             |     |   |    |                                                                                                                                 |        |               |                                                                                                           |
|----|-------------|-----|---|----|---------------------------------------------------------------------------------------------------------------------------------|--------|---------------|-----------------------------------------------------------------------------------------------------------|
| 9  | DvContig116 | 283 | M | 16 | IG-domain protein family member (zig-3) [ <i>Caenorhabditis elegans</i> ]                                                       | 7E-41  | 94/248 (37%)  | None                                                                                                      |
| 10 | DvContig117 | 138 | - | 16 | nippocystatin [ <i>Nippostrongylus brasiliensis</i> ]                                                                           | 4E-48  | 84/122 (68%)  | maternal sterile (Ste)                                                                                    |
| 11 | DvContig118 | 435 | - | 21 | Nuclear Hormone Receptor family member (nhr-142) [ <i>Caenorhabditis elegans</i> ]                                              | 2E-60  | 133/375 (35%) | None                                                                                                      |
| 12 | DvContig160 | 116 | M | 19 | None                                                                                                                            | -      | -             | -                                                                                                         |
| 13 | DvContig166 | 404 | - | 41 | heat shock protein 70 [ <i>Dirofilaria immitis</i> ]                                                                            | 7E-77  | 136/187 (72%) | larval arrest (Lva)maternal sterile (Ste)Unclassifiedembryonic lethal (Let)transgene expression increased |
| 14 | DvContig200 | 102 | M | 20 | None                                                                                                                            | -      | -             | -                                                                                                         |
| 15 | DvContig216 | 343 | - | 38 | Hypothetical protein CBG12561 [ <i>Caenorhabditis briggsae</i> ] [ Contains Serine/Threonine protein kinases, catalytic domain] | 8E-141 | 233/309 (75%) | None                                                                                                      |
| 16 | DvContig225 | 341 | M | 17 | cathepsin B-like cysteine protease 2 [ <i>Parelaphostrongylus tenuis</i> ]                                                      | 7E-106 | 182/313 (58%) | None                                                                                                      |
| 17 | DvContig231 | 121 | - | 24 | None                                                                                                                            | -      | -             | -                                                                                                         |

|    |             |     |   |    |                                                                                                     |       |               |                                                                                                                                                                                   |
|----|-------------|-----|---|----|-----------------------------------------------------------------------------------------------------|-------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 18 | DvContig259 | 220 | M | 19 | secreted protein 5 precursor<br>[ <i>Ancylostoma caninum</i> ]                                      | 2E-12 | 60/201 (29%)  | None                                                                                                                                                                              |
| 19 | DvContig325 | 247 | - | 15 | Ribosomal Protein, Large subunit<br>family member (rpl-19) [ <i>Caenorhabditis elegans</i> ]        | 2E-58 | 161/198 (81%) | larval arrest (Lva)maternal sterile (Ste)embryonic<br>lethal (Let)embryonic terminal arrest variable emb<br>(Emb)pleiotropic defects severe early emb<br>(Emb)larval lethal (Let) |
| 20 | DvContig346 | 50  | M | 20 | None                                                                                                | -     |               | -                                                                                                                                                                                 |
| 21 | DvContig348 | 209 | M | 18 | secreted protein ASP-2 [ <i>Necator americanus</i> ]                                                | 6E-12 | 67/223 (30%)  | None                                                                                                                                                                              |
| 22 | DvContig356 | 291 | - | 41 | C25A1.8<br>[ <i>Caenorhabditis elegans</i> ]<br>clec-87 - (C-type LECTin)                           | 3E-31 | 76/191 (39%)  | None                                                                                                                                                                              |
| 23 | DvContig376 | 397 | - | 49 | cysteine proteinase 5<br>[ <i>Necator americanus</i> ]                                              | 1E-92 | 170/338 (50%) | embryonic lethal (Let)locomotion abnormal<br>(unc)larval arrest (Lva)                                                                                                             |
| 24 | DvContig396 | 151 | - | 22 | beta tubulin type 1 [ <i>Ancylostoma caninum</i> ]                                                  | 2E-68 | 129/151 (85%) | pronuclear migration abnormal early emb<br>(Emb)embryonic lethal (Let)                                                                                                            |
| 25 | DvContig402 | 156 | M | 27 | None                                                                                                | -     | -             | -                                                                                                                                                                                 |
| 26 | DvContig416 | 235 | - | 21 | Hypothetical protein T09B4.7<br>[ <i>Caenorhabditis elegans</i> ]<br>Contains Protein kinase domain | 7E-55 | 100/178 (56%) | None                                                                                                                                                                              |

|    |                    |     |   |    |                                                                                                       |       |               |                          |
|----|--------------------|-----|---|----|-------------------------------------------------------------------------------------------------------|-------|---------------|--------------------------|
| 27 | DvContig432        | 239 | M | 16 | secreted protein 5 precursor<br>[ <i>Ancylostoma caninum</i> ]                                        | 2E-15 | 65/208 (31%)  | -                        |
| 28 | DvContig434        | 227 | M | 21 | secreted protein 5 precursor<br>[ <i>Ancylostoma caninum</i> ]                                        | 5E-15 | 59/198 (29%)  | -                        |
| 29 | D.viviparus_10_E06 | 215 | - | 18 | Seven B Two homolog family member<br>(sbt-1) [ <i>Caenorhabditis elegans</i> ]                        | 9E-71 | 131/210 (62%) | aldicarb resistant (Ric) |
| 30 | D.viviparus_10_H07 | 330 | - | 21 | Hypothetical protein CBG13180<br>[ <i>Caenorhabditis briggsae</i> ]<br>Contains Protein Kinase Domain | 3E-28 | 85/248 (34%)  | None                     |
| 31 | D.viviparus_11_C01 | 101 | - | 28 | None                                                                                                  | -     | -             | -                        |
| 32 | D.viviparus_2_C05  | 92  | - | 19 | None                                                                                                  | -     | -             | -                        |
| 33 | D.viviparus_2_D08  | 375 | - | 25 | Hypothetical protein CBG18333<br>[ <i>Caenorhabditis briggsae</i> ]                                   | 1E-20 | 73/173 (42%)  | -                        |
| 34 | D.viviparus_2_G05  | 82  | M | 22 | None                                                                                                  | -     | -             | -                        |
| 35 | D.viviparus_2_H04  | 376 | - | 22 | metalloprotease 1 precursor<br>[ <i>Ancylostoma ceylanicum</i> ]                                      | 1E-29 | 61/117 (52%)  | None                     |

|    |                   |     |   |    |                                                                                               |       |               |                           |
|----|-------------------|-----|---|----|-----------------------------------------------------------------------------------------------|-------|---------------|---------------------------|
| 36 | D.viviparus_3_D06 | 216 | - | 19 | None                                                                                          | -     | -             | -                         |
| 37 | D.viviparus_4_D06 | 290 | - | 16 | Hypothetical protein CBG24164<br>[ <i>Caenorhabditis briggsae</i> ]                           | 2E-13 | 54/159 (33%)  | -                         |
| 38 | D.viviparus_4_F01 | 43  | M | 18 | None                                                                                          | -     | -             | -                         |
| 39 | D.viviparus_5_H09 | 163 | M | 23 | None                                                                                          | -     | -             | -                         |
| 40 | D.viviparus_6_D12 | 86  | M | 23 | None                                                                                          | -     | -             | -                         |
| 41 | D.viviparus_7_B12 | 321 | - | 25 | Sperm-Specific family, class Q family<br>member (ssq-4) [ <i>Caenorhabditis<br/>elegans</i> ] | 2E-03 | 63/152 (41%)  | locomotion abnormal (unc) |
| 42 | D.viviparus_8_A01 | 332 | - | 21 | secreted acetylcholinesterase<br>[ <i>Dictyocaulus viviparus</i> ]                            | 0E+00 | 315/327 (96%) | None                      |
| 43 | D.viviparus_8_C07 | 101 | - | 20 | None                                                                                          | -     | -             | -                         |
| 44 | D.viviparus_9_B01 | 173 | - | 23 | None                                                                                          | -     | -             | -                         |

|    |                    |     |   |    |                                                                                                                         |       |               |                                                                                                                                                         |
|----|--------------------|-----|---|----|-------------------------------------------------------------------------------------------------------------------------|-------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| 45 | D.viviparus_12_A11 | 151 | - | 39 | Hypothetical protein T22H2.6a<br>[ <i>Caenorhabditis elegans</i> ] Granulin<br>domain smart00277                        | 1E-11 | 46/119 (38%)  | None                                                                                                                                                    |
| 46 | D.viviparus_13_F01 | 92  | - | 23 | None                                                                                                                    | -     | -             | -                                                                                                                                                       |
| 47 | D.viviparus_14_F01 | 113 | - | 23 | None                                                                                                                    | -     | -             | -                                                                                                                                                       |
| 48 | D.viviparus_14_H04 | 254 | - | 20 | Hypothetical protein CBG13511<br>[ <i>Caenorhabditis briggsae</i> ]                                                     | 0.012 | 28/81 (34%)   | -                                                                                                                                                       |
| 49 | D.viviparus_16_E10 | 365 | - | 18 | Hypothetical protein C44B12.5<br>[ <i>Caenorhabditis elegans</i> ]                                                      | 4E-23 | 91/239 (38%)  | maternal sterile (Ste)sterile progeny (Stp)embryonic<br>lethal (Let)                                                                                    |
| 50 | D.viviparus_18_C09 | 354 | - | 24 | Hypothetical protein CBG20492<br>[ <i>Caenorhabditis briggsae</i> ]<br>Peptidylglycine alpha-amidating<br>monooxygenase | 2E-84 | 154/295 (52%) | None                                                                                                                                                    |
| 51 | D.viviparus_18_D12 | 186 | M | 21 | CG1749-PA [ <i>Drosophila melanogaster</i> ]<br>Molybdopterin biosynthesis-related<br>protein                           | 5E-50 | 105/183 (57%) | None                                                                                                                                                    |
| 52 | D.viviparus_19_B07 | 338 | - | 36 | MoLTing defective family member (mlt-<br>9) [ <i>Caenorhabditis elegans</i> ]                                           | 4E-85 | 174/295 (58%) | molt defect (Mlt)locomotion abnormal (unc)paralyzed<br>(Pri)sick (Sck)reduced brood sizeslow growth<br>(Gro)late larval lethal (Let)larval arrest (Lva) |

|    |                    |     |   |    |                                                                                                 |        |               |                                                                  |
|----|--------------------|-----|---|----|-------------------------------------------------------------------------------------------------|--------|---------------|------------------------------------------------------------------|
| 53 | D.viviparus_19_E10 | 313 | - | 33 | parasite pepsinogen [ <i>Haemonchus contortus</i> ]                                             | 2E-76  | 148/308 (48%) | cell death abnormal (Ced)                                        |
| 54 | D.viviparus_20_A08 | 315 | - | 21 | Sperm-specific protein ZC168.6 [ <i>Caenorhabditis elegans</i> ]                                | 1E-12  | 42/100 (42%)  | None                                                             |
| 55 | D.viviparus_20_D05 | 158 | M | 21 | Hypothetical protein CBG02732 [ <i>Caenorhabditis briggsae</i> ]phospholipase A2                | 2E-40  | 85/142 (59%)  | None                                                             |
| 56 | D.viviparus_20_E11 | 197 | - | 46 | Hypothetical protein CBG21920 [ <i>Caenorhabditis briggsae</i> ]                                | 3E-19  | 51/106 (48%)  | None                                                             |
| 57 | D.viviparus_22_H06 | 109 | - | 23 | None                                                                                            | -      | -             | None                                                             |
| 58 | D.viviparus_22_H07 | 39  | - | 23 | None                                                                                            | -      | -             | None                                                             |
| 59 | D.viviparus_24_F10 | 343 | M | 19 | Hypothetical protein CBG17607 [ <i>Caenorhabditis briggsae</i> ]PDZ domain                      | 3E-23  | 89/324 (27%)  | None                                                             |
| 60 | D.viviparus_24_F12 | 129 | - | 23 | Hypothetical protein F44A2.5b [ <i>Caenorhabditis elegans</i> ]MIF4G domain containing protein. | 4E-45  | 89/145 (61%)  | None                                                             |
| 61 | D.viviparus_25_D08 | 358 | - | 39 | cathepsin L 1 [ <i>Dictyocaulus viviparus</i> ]                                                 | 2E-153 | 277/342 (80%) | embryonic lethal (Let)slow growth (Gro)locomotion abnormal (unc) |

|    |                    |     |   |    |                                                                                      |       |              |                                                                              |
|----|--------------------|-----|---|----|--------------------------------------------------------------------------------------|-------|--------------|------------------------------------------------------------------------------|
| 62 | D.viviparus_26_C06 | 34  | - | 17 | None                                                                                 | -     | -            | -                                                                            |
| 63 | D.viviparus_26_D04 | 240 | - | 35 | Hypothetical protein F28D1.8<br>[ <i>Caenorhabditis elegans</i> ] Contains IG domain | 6E-10 | 33/91 (36%)  | -                                                                            |
| 64 | D.viviparus_26_D09 | 51  | M | 15 | None                                                                                 | -     | -            | -                                                                            |
| 65 | D.viviparus_26_F06 | 158 | M | 21 | phospholipase A2<br>[ <i>Caenorhabditis briggsae</i> ]                               | 2E-40 | 85/142 (59%) | None                                                                         |
| 66 | D.viviparus_28_B12 | 67  | M | 41 | None                                                                                 | -     | -            | -                                                                            |
| 67 | D.viviparus_30_D10 | 137 | - | 18 | Hypothetical protein CBG18309<br>[ <i>Caenorhabditis briggsae</i> ]                  | 4E-13 | 36/87 (41%)  | -                                                                            |
| 68 | D.viviparus_30_H04 | 206 | M | 13 | GRound-Like (grd related) family member (grl-5) [ <i>Caenorhabditis elegans</i> ]    | 2E-27 | 64/98 (65%)  | None                                                                         |
| 69 | D.viviparus_31_F11 | 118 | - | 18 | None                                                                                 | -     | -            | -                                                                            |
| 70 | D.viviparus_41_C07 | 233 | - | 58 | ARp2/3 complex component family member (arx-7) [ <i>Caenorhabditis elegans</i> ]     | 5E-40 | 80/121 (66%) | embryonic lethal (Let)locomotion abnormal (unc)sick (Sck)larval arrest (Lva) |

|    |                    |     |   |    |                                                                                                      |       |              |                                      |
|----|--------------------|-----|---|----|------------------------------------------------------------------------------------------------------|-------|--------------|--------------------------------------|
| 71 | D.viviparus_42_C05 | 92  | M | 18 | None                                                                                                 | -     | -            | -                                    |
| 72 | D.viviparus_33_A03 | 284 | M | 24 | Hypothetical protein CBG11012<br>[ <i>Caenorhabditis briggsae</i> ] contains<br>Leucine rich repeats | 5E-41 | 99/222 (44%) | None                                 |
| 73 | D.viviparus_35_B12 | 177 | M | 16 | None                                                                                                 | -     | -            | -                                    |
| 74 | D.viviparus_46_H03 | 219 | M | 20 | None                                                                                                 | -     | -            | None                                 |
| 75 | D.viviparus_43_F07 | 186 | M | 17 | Phospholipase A2-like protein<br>Y52B11A.8 [ <i>Caenorhabditis elegans</i> ]                         | 2E-22 | 43/100 (43%) | None                                 |
| 76 | D.viviparus_47_F01 | 175 | - | 23 | None                                                                                                 | -     | -            | -                                    |
| 77 | D.viviparus_48_A09 | 208 | - | 22 | heat shock protein 20 [ <i>Haemonchus<br/>contortus</i> ]                                            | 5E-30 | 60/124 (48%) | Unclassifiedlife span abnormal (Age) |
| 78 | D.viviparus_50_H11 | 335 | - | 22 | Defective spermatogenesis protein 8<br>[ <i>Caenorhabditis elegans</i> ]                             | 3E-21 | 73/227 (32%) | None                                 |
| 79 | D.viviparus_51_F01 | 206 | M | 13 | GRound-Like (grd related) family<br>member (grl-5) [ <i>Caenorhabditis<br/>elegans</i> ]             | 2E-27 | 64/98 (65%)  | None                                 |

|    |                    |     |   |    |                                                                                                                                                    |        |               |                                                                                                                                                                                   |
|----|--------------------|-----|---|----|----------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 80 | D.viviparus_52_B03 | 338 | - | 27 | Hypothetical protein ZK1128.3<br>[ <i>Caenorhabditis elegans</i> ]                                                                                 | 2E-12  | 58/194 (29%)  | -                                                                                                                                                                                 |
| 81 | D.viviparus_52_F07 | 133 | - | 24 | Mechanosensory abnormality protein<br>12 [ <i>Caenorhabditis elegans</i> ] alpha-<br>tubulin MEC-12 [ <i>Caenorhabditis<br/>elegans</i> ]          | 8E-51  | 95/103 (92%)  | Only Secondary targets                                                                                                                                                            |
| 82 | D.viviparus_52_F12 | 160 | - | 21 | major sperm protein [ <i>Dictyocaulus<br/>viviparus</i> ]                                                                                          | 2E-66  | 122/126 (96%) | fat content increased                                                                                                                                                             |
| 83 | D.viviparus_52_G05 | 230 | - | 22 | Ribosomal Protein, Large subunit<br>family member (rpl-19) [ <i>Caenorhabditis<br/>elegans</i> ]                                                   | 6E-55  | 161/198 (81%) | larval arrest (Lva)maternal sterile (Ste)embryonic<br>lethal (Let)embryonic terminal arrest variable emb<br>(Emb)pleiotropic defects severe early emb<br>(Emb)larval lethal (Let) |
| 84 | D.viviparus_53_A07 | 301 | M | 21 | Yeast glc seven-like phosphatases<br>protein 3 [ <i>Caenorhabditis elegans</i> ]<br>putative serine/threonine phosphatase<br>[ <i>O.dentatum</i> ] | 3E-100 | 162/284 (57%) | None                                                                                                                                                                              |
| 85 | D.viviparus_56_G03 | 274 | - | 15 | acyl-CoA dehydrogenase<br>[ <i>Caenorhabditis briggsae</i> ]                                                                                       | 9E-110 | 195/261 (74%) | None                                                                                                                                                                              |