

**Table S2. Lumen formation after transplantation of endothelial cells**

| Morpholino            | Embryo | Transplanted ISVs/embryo | Transplanted ISVs with an absent lumen | Transplanted ISVs with absent circulation |
|-----------------------|--------|--------------------------|--|---|
| Control MO            | 1      | 3                        | 0                                      | 0   |
|                       | 2      | 5                        | 1                                      | 1   |
|                       | 3      | 1                        | 0                                      | 0   |
|                       | 4      | 2                        | 0                                      | 0   |
|                       | 5      | 1                        | 0                                      | 0   |
|                       | 6      | 3                        | 1                                      | 1   |
|                       | 7      | 1                        | 0                                      | 0   |
|                       | 8      | 1                        | 0                                      | 0   |
|                       | Total  | 17                       | 2/17 (10%)                             | 2/17 (10%)                                |
| <i>moesin1</i> MO     | 1      | 1                        | 0                                      | 0   |
|                       | 2      | 3                        | 2                                      | 3   |
|                       | 3      | 1                        | 1                                      | 1   |
|                       | 4      | 1                        | 1                                      | 1   |
|                       | 5      | 3                        | 1                                      | 3   |
|                       | 6      | 2                        | 0                                      | 0   |
|                       | 7      | 3                        | 2                                      | 3   |
|                       | Total  | 14                       | 7/14 (50%)<br><i>P</i> <0.02           | 11/14 (78%)<br><i>P</i> <0.01             |
| <i>ve-cadherin</i> MO | 1      | 2                        | 2                                      | 2   |
|                       | 2      | 2                        | 1                                      | 2   |
|                       | 3      | 5                        | 2                                      | 5   |
|                       | 4      | 4                        | 1                                      | 3   |
|                       | 5      | 2                        | 0                                      | 1   |
|                       | 6      | 1                        | 1                                      | 1   |
|                       | 7      | 1                        | 1                                      | 1   |
|                       | 8      | 2                        | 1                                      | 2   |
|                       | 9      | 1                        | 1                                      | 1   |
|                       | 10     | 5                        | 2                                      | 5   |
|                       | 11     | 2                        | 1                                      | 2   |
|                       | 12     | 1                        | 1                                      | 1   |
|                       | 13     | 3                        | 3                                      | 3   |
|                       | 14     | 2                        | 1                                      | 2   |
|                       | Total  | 33                       | 18/33 (54%)<br><i>P</i> <0.01          | 31/33 (94%)<br><i>P</i> <0.01             |

For the transplant experiments, standard randomization tests were used to compare treatment groups. Separate tests were conducted to compare the control group to the *moesin1* MO treatment and the control group to the *ve-cadherin* MO treatment. Responses tested were the number of transplanted embryos; the proportion that lacked a lumen; and the proportion that lacked a circulatory path but not a lumen. For the comparison of control and Moesin1 knockdown; there was a total of  $15!/(8! 7!)=6435$  possible arrangements of embryos to treatments; whereas for comparison of control and Ve-cadherin knockdown this number was  $22!/(8! 14!)=319,770$ . Randomly chosen permutations of the possible arrangements were used in the tests; and it was determined that 200,000 permutations were sufficient to provide stability to three decimal places in *P*-values resulting from the tests. Test statistics used were absolute mean difference for the number of lumen and absolute difference in proportions for the other responses.