S1 Appendix. Two-dimensional cell tissue. We have modelled a tissue as a 1-D chain of cells. Since cell tissues are not 1-D objects, one might wonder whether the results are qualitatively similar for 2-D or 3-D tissues. To answer that question, we analyzed the case of a 2-D tissue. Such case could represent the situation of an *in vitro* cell population. Assuming that one cell in the middle of the tissue starts to produce an abnormally high quantity of miRNA, the tissue has a central symmetry around Cell 0 and the diffusive term in the miRNA evolution equation can be written in polar coordinates as a function of the distance to Cell 0, r:

$$D\nabla^2 miRNA = D\left(\frac{\partial^2 miRNA}{\partial r^2} + \frac{1}{r}\frac{\partial miRNA}{\partial r}\right) \quad (1)$$

Looking at the stationary protein concentration as a function of the transport coefficient in several cells of the tissue, we find qualitatively the same results as in the 1-D system (see Fig. S1 compared to Fig. 2). As shown in Fig. S1 A, the protein concentration increases in Cell 0 when D increases. In cells far away from Cell 0, the protein concentration decreases when D increases. In intermediate cells, we find, as in the one-dimensional tissue, that the protein concentration goes through a minimum when D increases. For large values of D, the protein concentration is homogeneous in the tissue and is above the threshold. However, in a 2-D tissue, miRNAs produced by Cell 0 are diluted in more cells than in the 1-D case. The synthesis rate of miRNA in Cell 0 has therefore to be much higher in the 2-D system than in the 1-D one to get the same dynamics in the tissue. Fig. S1 B, C and D show the protein concentration in a 2-D cell tissue for three different values of D. The green color corresponds to the range of action as defined in the text and it shows a maximum for intermediate values of D.

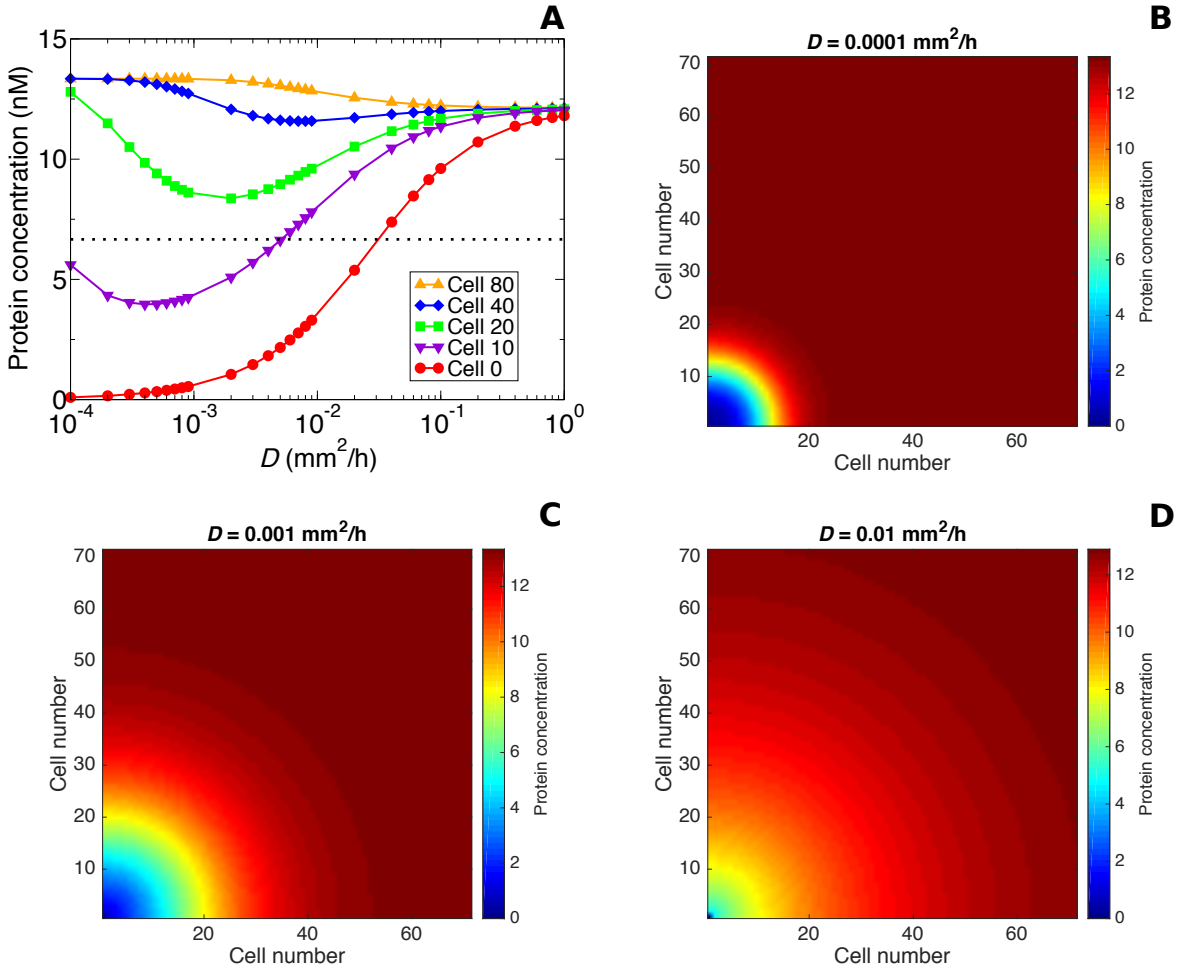

Fig. S1 Stationary protein concentration in a 2-D cell tissue (A) Stationary protein concentration as a function of the transport coefficient in different cells of the tissue. Protein concentration in a 2-D cell tissue for $D = 10^{-4}$ mm$^2\cdot$ h^{-1} (B), $D = 10^{-3}$ mm$^2\cdot$ h^{-1} (C) and $D = 10^{-2}$ mm$^2\cdot$ h^{-1} (D). $v_{smiRNA} = 200$ nM$\cdot$ h^{-1} in Cell 0 and 0.1 nM$\cdot$ h^{-1} in other cells.