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Stop talking at the back – just do what it says on the tin!

We will explore the possibility that control of multicellular development in fungi is radically different from that in animals and plants. Combining two very different recent investigations prompts this line of thought. (1) A new vector-based mathematical model of hyphal growth (the Neighbour-Sensing model) shows that fruit bodies can be simulated by applying the same regulatory functions to all of the growth points active in a structure at any specific time. Shape of the fruit body emerges from the concerted response of the entire population of hyphal tips, in the same way, to the same signals. (2) In an initial search of fungal genome databases, no significant sequence similarities have been found to some sequences that are both crucial to animal multicellular development, and highly conserved in animal genomes. Both observations would be consistent with fungal morphogenesis being based on expression of internal programmes without much dependence on communication between the active agents (= hyphal tips) of the developing structure.

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NOTES

Basically, it's a matter of rule sets and the proposition is that fungal morphogenesis involves fewer, simpler, and less targeted rules than development in animals or plants.