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Spatial organization of tubercles and terrace lines in *Paradoxides forchhammeri* - evidence of lateral inhibition

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Spatial statistics on the positions of trilobite tubercles indicate the existence of a developmental spacing mechanism. Similar spacing between sensory bristles, due to lateral inhibition, is well known in insects, and the genetic basis for these patterns has been thoroughly studied. Tubercles (granules) in the Middle Cambrian trilobite Paradoxides forchhammeri are spaced out, but otherwise randomly positioned. Assuming that similar genetic principles are in operation for the positioning of peripheral neuronal elements in all arthropods, it can even be speculated that genes with functions similar to Delta, Notch, achaete and scute were active in trilobite cuticular patterning. Also, in *P. forchhammeri*, terrace lines (ridges) seem to display transitions into granulation, indicating that these two types of structure share an underlying pattern formation mechanism.

Key words: Trilobites, tubercles, terrace lines, pattern formation, evolution, Notch.

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