

## PECULIAR CELL ORGANISATION OF THE LABIAL GLAND IN SOCIAL HYMENOPTERA

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The many different exocrine glands that exist in social insects can morphologically be classified into either epithelial glands or glands formed by bicellular units. In some Hymenoptera, however, the labial gland shows a special structure, different from both other types. In social wasps, several ponerine ants and some bees, this gland is formed by globular structures or acini, which consist of a central cell surrounded by parietal cells. Intercellular canaliculi connect both cell types to the ductulus.

In the pupal stage, the labial gland starts to grow in the same way as an epithelial labial gland. After epithelial acini are formed, the cell opposite to the ductulus starts to grow faster than the others and will become the future central cell. While growing it pushes away the lumen inside the acinus until it reaches the ductulus, while the other cells will gather around this fast growing cell. Finally the canaliculi are formed and the parietal cells invaginate partly into the central cell, in such a way that the outer surface of the acinus is rounded.

This process results in the adult appearance of the labial gland as a complex and apparently aberrant type of cellular organization, even when its ontogenetic formation clearly reveals its epithelial origin. Although evolved independently, the structure shows several similarities in wasps, ants and bees.