

The capsule of human Meissner corpuscles: immunohistochemical evidence

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Meissner corpuscles are cutaneous mechanoreceptors that are usually located in the dermal papillae of human glabrous skin. Structurally, these sensory corpuscles consist of a mechanoreceptive sensory neuron surrounded by non-myelinating lamellar Schwann-like cells. Some authors have described a partially developed fibroblastic capsule of endoneurial or perineurial origin around Meissner corpuscles; however, others have noted that these structures are non-encapsulated. As there is continuity between the periaxonic cells forming the sensory corpuscles and the cells of the nerve trunks, we used immunohistochemistry to examine the expression of endoneurial (CD34 antigen) or perineurial [Glucose transporter 1 (Glut1)] markers in human cutaneous Meissner corpuscles. We also investigated the immunohistochemical patterns of nestin and vimentin (the main intermediate filaments of the cytoskeleton of endoneurial and perineurial cells, respectively) in Meissner corpuscles. The most important finding from this study was that CD34-positive cells formed a partial/complete capsule of endoneurial origin around most Meissner corpuscles, without signs of other perineurial Glut1-positive elements. However, the cytoskeletal proteins of the capsular CD34-positive cells did not include either nestin or vimentin, so the cytoskeletal composition of these cells remains to be established. Finally, the intensity of the immunoreactivity for CD34 in the capsule decreased with ageing, sometimes becoming completely absent in the oldest individuals. In conclusion, we report the first immunohistochemical evidence of

the capsule of Meissner corpuscles in humans and demonstrate the endoneurial origin of the capsule. © 2019 Anatomical Society

capsule

CD34 antigen

endoneurium

human

immunohistochemistry

Meissner corpuscles

CD34 antigen

cytoskeleton protein

glucose transporter 1

nestin

vimentin

adult

aged

antigen expression

Article

controlled study

cytoskeleton

endoneurial cell

endoneurium

glabrous skin

human

human tissue

immunohistochemistry

immunoreactivity

mechanoreceptor

Meissner corpuscle

perineurial cell

perineurium

priority journal

Schwann cell

sensory nerve cell

very elderly