Summary:
Pruritus is a devastating chronic itch condition known to significantly impact patient quality of life. It is one of the most common symptoms of skin disease and, therefore, also one of the most common reasons for visiting a dermatologist. Pruritus has proven particularly difficult to treat as it arises from a broad range of etiologies including systemic diseases and side effects of medications. Almost all previous itch research has focused on itch arising from the hairy skin. However, many dermatological conditions, such as plantar and palmar psoriasis, Tinea capitis, dyshidrosis and cholestasis induce glabrous (non-hairy) skin itch that occurs on the palms of hands and soles of feet and is considered particularly disabling. We recently discovered that hairy and glabrous skin itch are mediated by distinct neural circuits (Figure 3). Our investigation revealed the unique morphology of itch-sensing axonal arborization in the skin (Figure 4&5) and identified the neuronal populations mediating glabrous skin itch. This study provides novel insights into the topographical organization of the somatosensory system and sheds light on future therapeutic advances aimed towards alleviating chronic itch within both glabrous and hairy skin.

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