

平成 19 年度 博士課程学位論文要旨

学位論文題名（注：学位論文題名が欧文の場合は和訳をつけること）

The functional neuroanatomy of maternal love:

Mother's response to infant's attachment behaviors

(母性愛の機能的神経解剖学: 乳幼児の愛着行動に対する母親の反応)

学位の種類： 博士（保健科学）

保健科学研究科 保健科学専攻 フロンティアヘルスサイエンス分野

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Background: Maternal love, which may be the core of maternal behavior, is essential for the mother-infant attachment relationship and is important for the infant's development and mental health. However, little has been known about these neural mechanisms in human mothers. We examined patterns of maternal brain activation in response to infant cues using video clips.

Methods: We performed fMRI measurements while 13 mothers viewed video clips, with no sound, of her own infant and other infants of approximately 16 months of age who demonstrated two different attachment behaviors (smiling at the infant's mother and crying for her).

Results: We found that a limited number of mother's brain areas were specifically involved in recognition of mother's own infant, namely orbitofrontal cortex (OFC), periaqueductal gray, anterior insula and dorsal and ventrolateral parts of putamen. Additionally, we found the strong and specific mother's brain response for mother's own infant's distress. The differential neural activation pattern was found in the dorsal region of OFC, caudate nucleus, right inferior frontal gyrus, dorsomedial prefrontal cortex (PFC), anterior cingulate, posterior cingulate, thalamus, substantia nigra, posterior superior temporal sulcus and PFC.

Conclusions: Our results showed the highly elaborate neural mechanism mediating maternal love, and diverse and complex maternal behaviors for vigilant protectiveness.