

# マウス嗅粘膜における嗅腺の発達 —計量組織学的観察—

増田 勝巳

胎生14日から生後60日までのICRマウスの嗅粘膜で、特に嗅腺に注目し、胎子ならびに新生子における嗅腺の発達を計量組織学的に観察した。胎生14日の鼻腔においては、嗅粘膜と呼吸粘膜の区別は可能だが、嗅腺を観察することはできない。胎生17日では鼻腔下部の呼吸粘膜には良く発達した鼻腺が観察できる。しかし嗅粘膜に嗅腺はごくわずかしが観察されず、その形態は少数の短く管状を呈する腺構造として固有層内に認められる。嗅腺は出生後急速にその数が増加するとともに、分泌部が固有層内で長く伸展する。分泌部は基本的に管状構造を呈するが、生後日数とともに長くなり固有層内の血管や神経線維束に圧迫されるようになる。計量組織学的に観察すると嗅腺細胞数は胎生19日と生後0日の間で急速に増加する ( $P < 0.01$ )。嗅腺は胎生17日では天蓋・鼻中隔域および甲介域にのみ出現し、外側域には見られない。生後においても外側域に少なく、その分布に明らかな部位差が認められ ( $P < 0.01$ )、その発達には呼吸の開始が密接に関連する可能性がある。

(平成16年5月25日受理)

## Development of the Olfactory Glands in Fetal and Early Postnatal Mice —A Histometrical Study—

Katsumi MASUDA

The olfactory glands of ICR-mice from 14 days of gestation to 60 days of age were histometrically examined. At 14 days of gestation, the nasal cavity could be divided into two regions; the olfactory and respiratory regions, but no olfactory glands could be observed. At 17 days of gestation, the respiratory mucosa contained numerous nasal glands, but very few olfactory glands could be seen in the olfactory mucosa, and the secretory portion in the olfactory lamina propria was very short. Between 19 days of gestation and the 0 day after birth, the olfactory glands significantly increased in number, and the secretory portions were seen to be markedly extending and were being twisted in the lamina propria. The secretory cells became characterized by an elliptic nucleus and abundant cytoplasm. At 17 days of gestation, the secretory cells could be observed in both the roof and septum areas and the turbinate area, but the lateral area did not yet contain any olfactory glands. At three days after birth, a few glands appeared in the lateral area. In conclusion, there are regional differences not only in the development but also in the distribution of the olfactory glands, and the onset of respiration is thought to play an essential role in olfactory gland development. (Accepted on May 25, 2004) *Kawasaki Igakkaishi* 30(1):11-19, 2004

**Key Words** ① Olfactory gland ② Olfactory epithelium

川崎医科大学 解剖学  
〒701-0192 倉敷市松島577

e-mail address: kmasuda@med.kawasaki-m.ac.jp

Department of Anatomy, Kawasaki Medical School:  
577 Matsushima, Kurashiki, Okayama, 701-0192 Japan

















## 参 考 文 献

- 1) Sorokin SP : Histology Cell and Tissue Biology. 5th ed, New York, Elsevier Science Publishing Co. 1983, pp 788-796
- 2) Kaufman MH : The Atlas of Mouse Development. London, Academic Press. 1992
- 3) 森 幸威：マウス嗅粘膜発生と嗅上皮における細胞死の組織学的観察. 川崎医学会誌 25 : 211-221, 1999
- 4) Cuschieri A, Bannister LH : The development of the olfactory mucosa in the mouse : light microscopy. J Anat 119 : 277-286, 1975
- 5) Cuschieri A, Bannister LH : The development of the olfactory mucosa in the mouse : electron microscopy. J Anat 119 : 471-498, 1975
- 6) Iwema CL, Schwob JE : Odorant receptor expression as a function of neuronal maturity in the adult rodent olfactory system. J Comp Neurol 459 : 209-222, 2003
- 7) Fawcett DW : A Textbook of Histology. 12th ed, New York, Chapman & Hall. 1994, pp 704-707
- 8) Cormack DH : Ham's Histology. 9th ed, Philadelphia, J. B. Lippincott Company. 1987, pp 541-546
- 9) 森 幸威：マウス胎子における嗅上皮の発達－走査電顕による観察－. 川崎医学会誌 26 : 211-221, 2000
- 10) Rugh R : The Mouse Its Reproduction and Development. New York, Oxford University Press. 1990, pp 197
- 11) 夜久有滋, 猿田敏行：嗅球除去後ラット嗅上皮の変性と再生に関する電顕的研究. 日耳鼻 89 : 1777-1786, 1986
- 12) Monti-Graziadei GA : Cell migration from the olfactory neuroepithelium of neonatal and adult rodents. Brain Res Dev Brain Res 70 : 65-74, 1992
- 13) Suzuki Y, Takeda M, Obara N, Suzuki N : Bulbectomy of neonatal mice induces migration of basal cells from the olfactory epithelium. Brain Res Dev Brain Res 108 : 295-298, 1998
- 14) Morrison EE, Costanzo MR : Scanning electron microscopic study of degeneration and regeneration in the olfactory epithelium after axotomy. J Neurocytol 18 : 393-405, 1989
- 15) 菊屋義則：マウス嗅上皮の変性と再生－走査電顕的観察－. 耳鼻臨床 77 : 1659-1680, 1984