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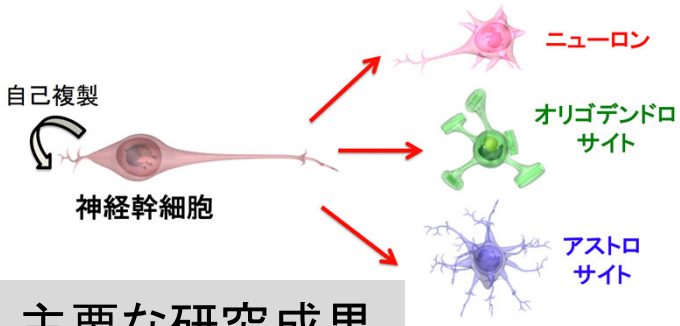
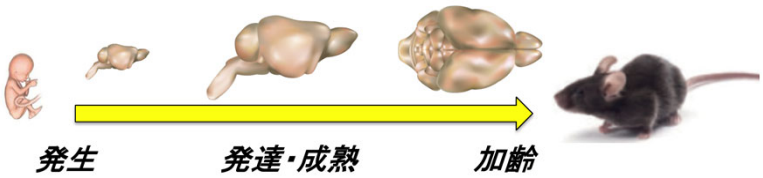
研究内容

複雑かつ精緻な哺乳類の脳神経系は、遺伝的プログラムに従い再現性良く発生・発達します。一方で、生後発達過程や成体においても、哺乳類の脳は柔軟な可塑的性質を持っています。そして、これらの二つの性質が相まって、動物の行動や高次脳機能を制御する脳神経系が出来上がり、維持されます。このような脳神経系の発生・発達・可塑性について研究を行っています。
特に、神経幹細胞の制御機構とニューロン新生という現象に着目しており、分子遺伝学・光遺伝学やライブイメージングという技術を駆使して、研究を進めています。

神経幹細胞の細胞分化



脳の発生・発達・成熟



主要な研究成果

＜論文・著書＞

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Imayoshi, I., Tabuchi, S., Matsumoto, M., Kitano, S., Miyachi, H., Kageyama, R. and Yamanaka, A. (2020) Light-induced silencing of neural activity in Rosa26 knock-in and BAC transgenic mice conditionally expressing the microbial halorhodopsin eNpHR3. ***Sci Rep.***, 10(1):3191.

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●Li, W.L., Chu, M.W., Wu, A., Suzuki, Y., **Imayoshi.I.** (**co-corresponding author**) and Komiyama, T. (2018) Adult-born neurons facilitate olfactory bulb pattern separation during task engagement. ***eLife*** 7, e33006.

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