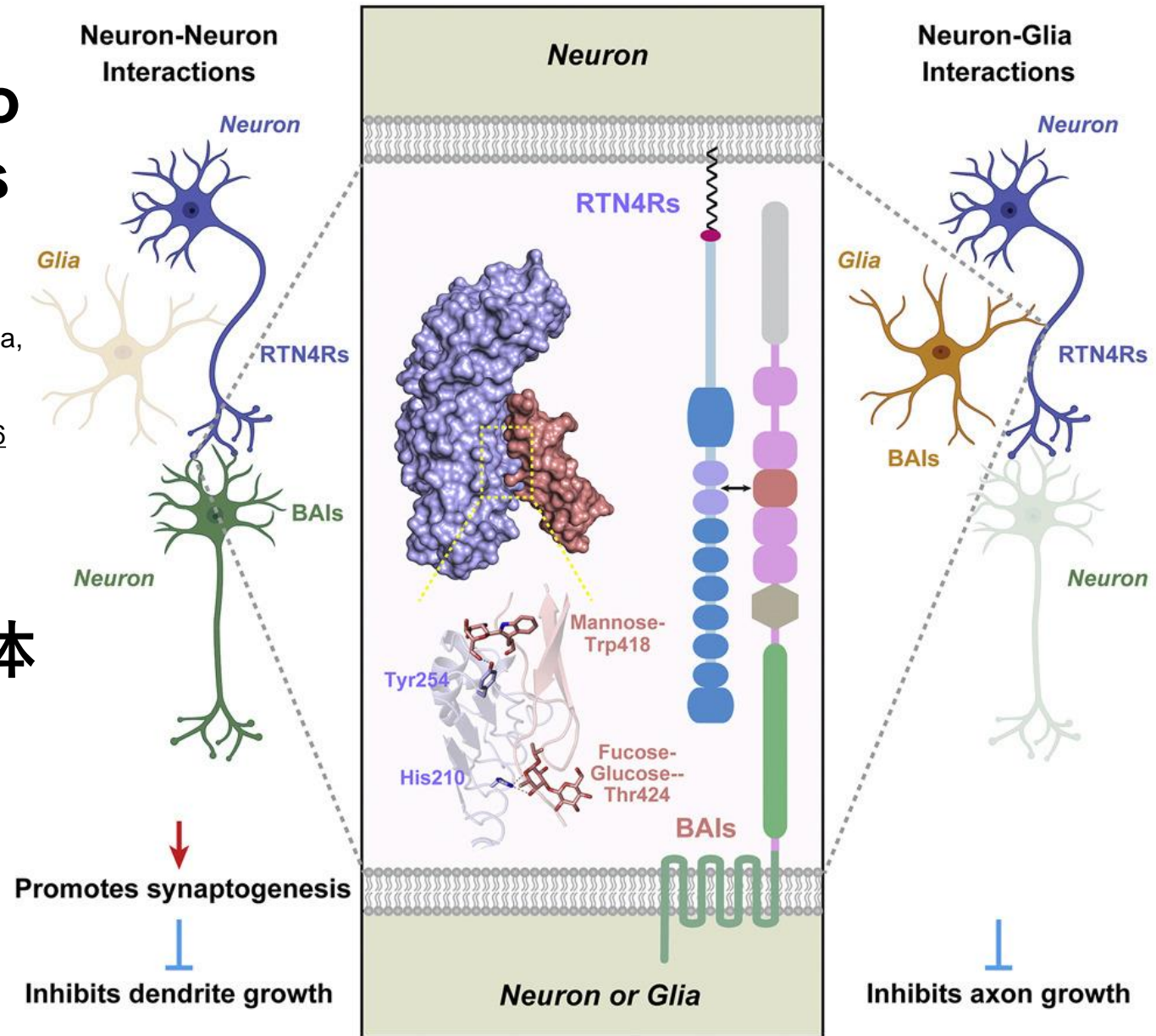


RTN4/NoGo-receptor binding to BAI adhesion-GPCRs regulates neuronal development

Jie Wang, Yi Miao, Rebecca Wicklein, ..., Marius Wernig, K. Christopher Garcia, Thomas C. Sudhof

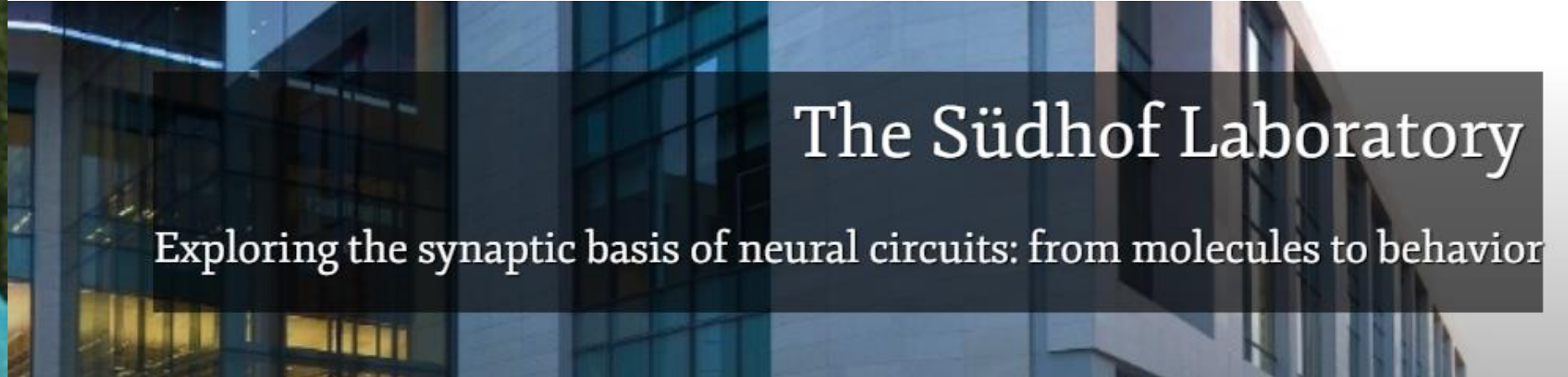
Published: November 09, 2021 DOI: <https://doi.org/10.1016/j.cell.2021.10.016>

接着型Gタンパク質共役型受容体 BAIと結合したRTN4/NoGo受容体がニューロンの発達を制御する





Thomas C. Südhof



ACKNOWLEDGMENTS

We thank S. Essayan-Perez, D. Waghray, A. Velasco, X. Zhang, D. Siepe, S. Maeda, and **B. Kobilka** for support; the Vincent Coates Foundation Mass Spectrometry Laboratory at Stanford University (RRID:SCR_017801) for mass spectrometry analyses; **M. Yuzaki** (Keio University) for sharing BAI2 and BAI3 cKO mice; and R.S. Haltiwanger (University of Georgia) for sharing POFUT2 KO HEK 293T cells. This project was supported by the Howard



Brian Kobilka



柚崎通介教授

“In examining synapse formation, our laboratory is studying a range of key synaptic adhesion molecules, such as neurexins, neuroligins, teneurins, Bai's and latrophilins.” (<https://med.stanford.edu/sudhoflab/About.html>)

① (Fig.1)

BAIsのリガンドとしてRTN4Rsを発見した

②- 1 (Fig.2)

BAIsは、N-TSRsドメインを介してRTN4Rsと結合していた

②- 2 (Fig.3 and 4)

BAIsとRTN4Rsは、糖鎖を介して結合していた

③- 1 (Fig.5, 6, and 7)

ニューロンのBAIsとRTN4Rsの結合は、シナプス形成を促進した、樹状突起伸長を抑制した

③- 2 (Fig. 7)

グリアのBAIsとRTN4Rsの結合は、軸索伸長を抑制した

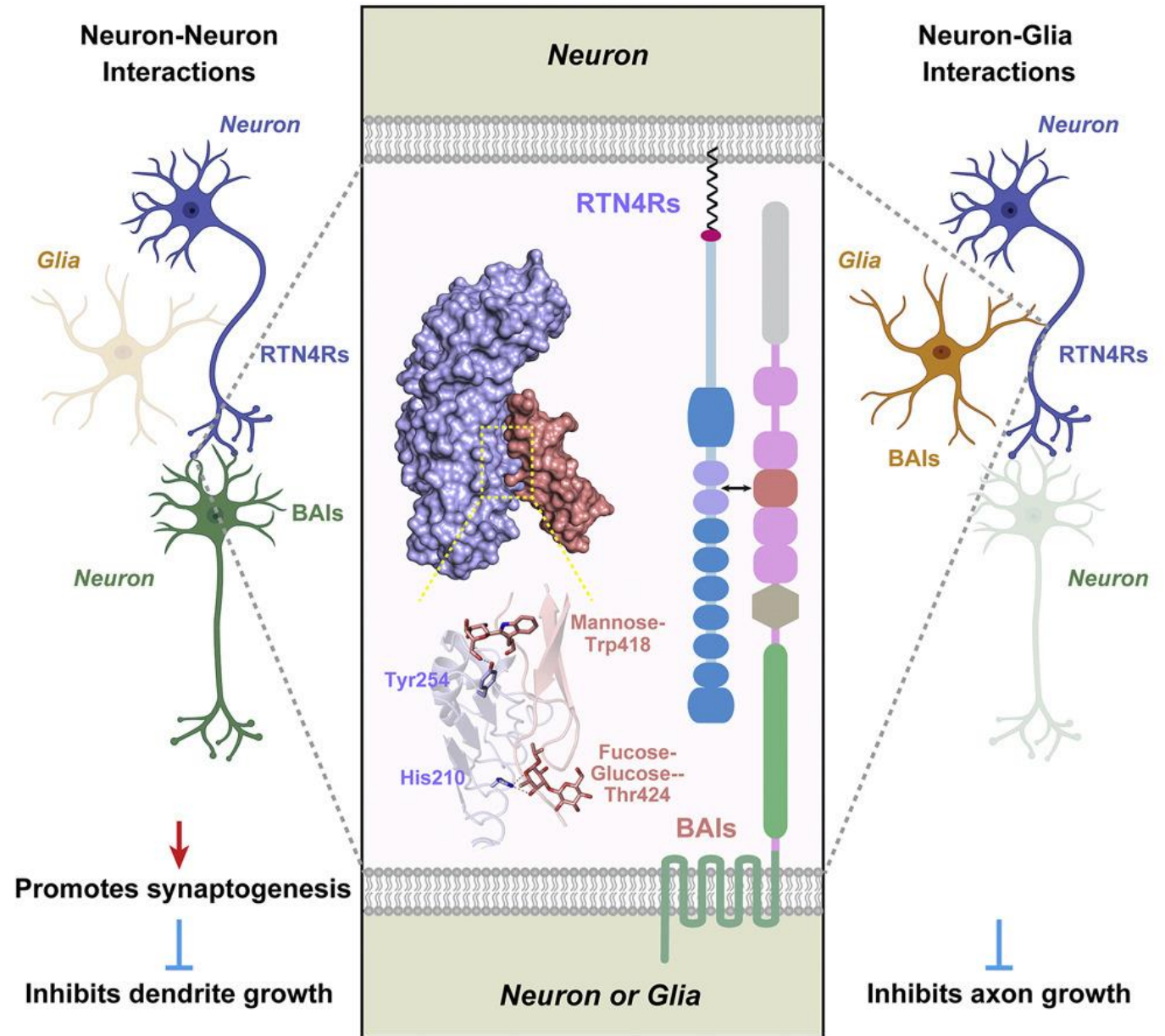


Fig.2A

Brain-specific Angiogenesis Inhibitor (脳特異的血管新生抑制因子)

Small secreted C1q-like (C1ql) proteins are known to bind to BAI3 and modulate synapse formation (Bolliger et al., 2011).

	BAI1	BAI2	BAI3
Location	8q24.3	1p35.2	6q12-q13
Gene length (kbp)	95	37	754
Exon count	35	32	32
Protein length (aa)	1,584	1,585	1,522
Mass (kDa)	174	173	172
Brain region specificity	Low	Low	Low

(NCBI Gene, UniProt, The Human Protein Atlas)

A

