## Afamin/Wnt3a Condition Medium

# Organoid Cell Culture

Wnt signaling is known to be involved in early development, maintenance and regeneration of stem cells, and in cancer formation. Wnt signaling has also been found to play an important role in the growth and maintenance of these processes. In particular, Wnt3a has been revealed to be an essential niche component for maintaining the proliferation of Lgr5-positive stem cells in intestinal epithelial cells and is used for the production of various digestive organoids such as the small intestine, large intestine, stomach, pancreas and liver. Although Wnt3a has been conventionally used for the culture of gut organoids, it is a fat-soluble protein, so it forms aggregates in serum-free medium and can not exert its activity sufficiently. In 2016, Mihara et al. found that high Wnt3a activity can be maintained by forming a complex with Wnt3a by Afamin, which is one of the components of serum. In addition, by using Afamin and Wnt3a complex for organoid culture, long-term culture of organoid becomes possible. This new medium will result in optimal success for your organoid experiments.

**Serum Free**

**Stabilized Wnt3a**

**High Activity**

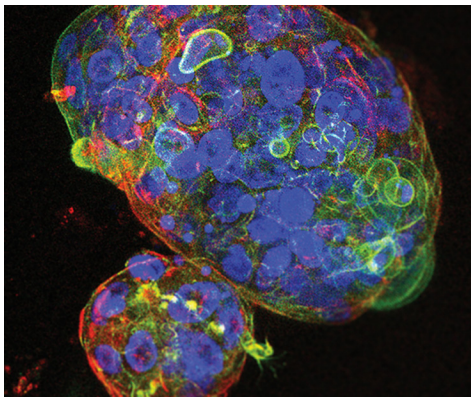
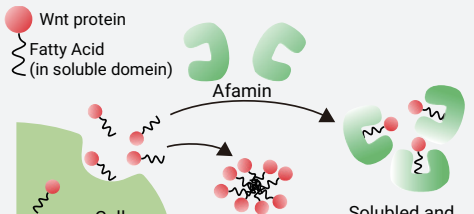
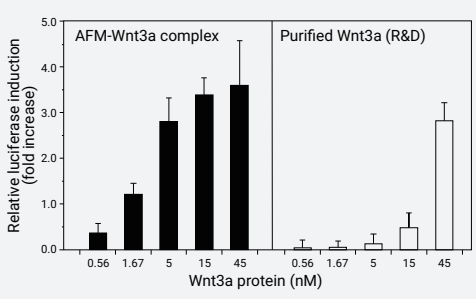
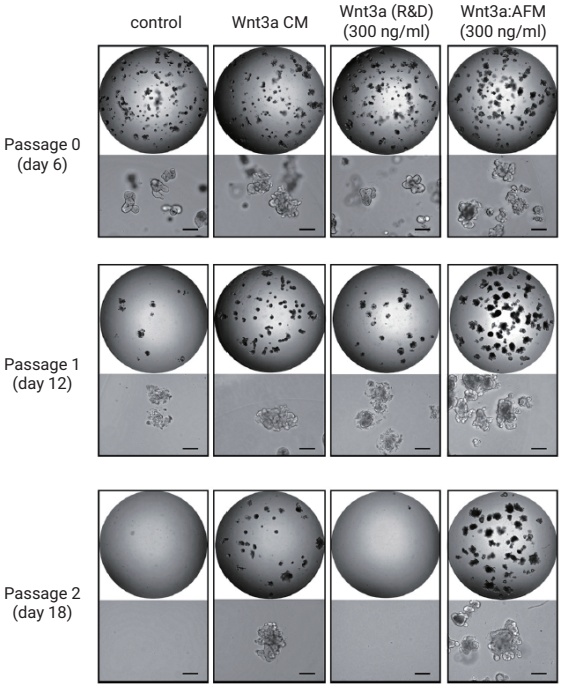


Image is a generous gift from Dr. Sato, Keio Univ

## Mechanism of Wnt3a Stabilization by Afamin Proteins

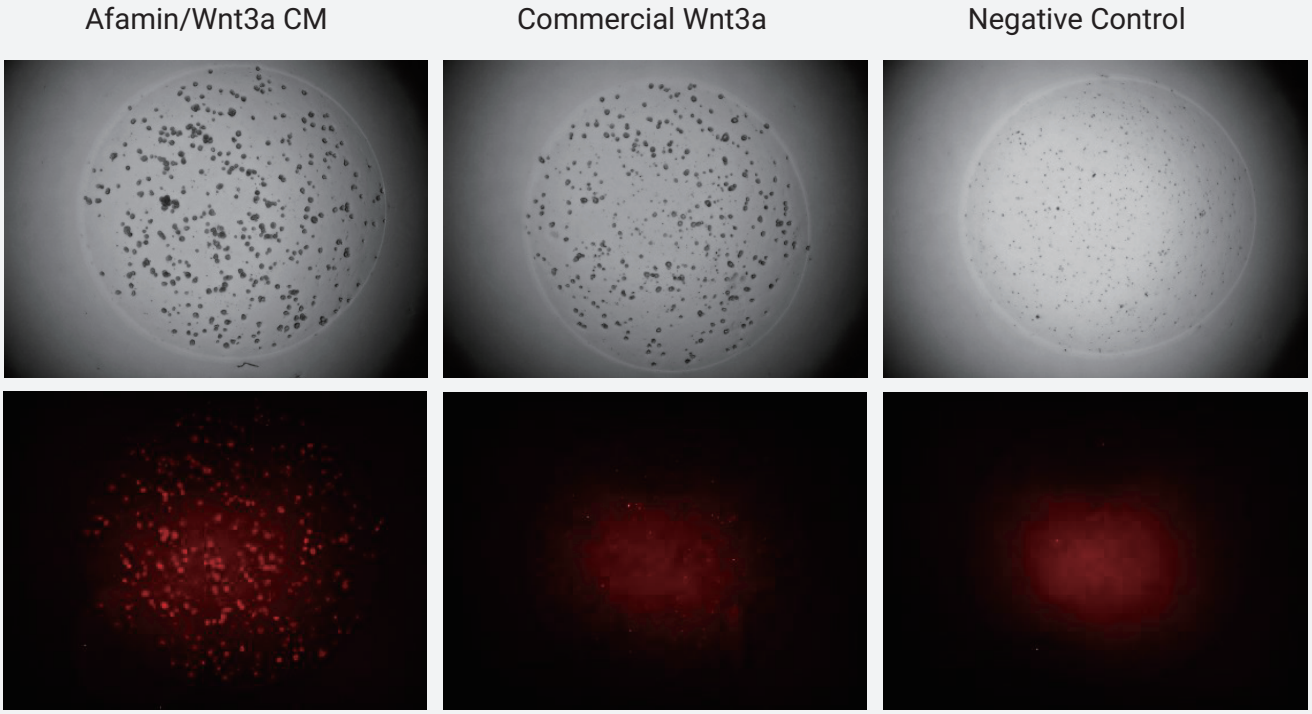



Mihara, et al, eLife (2016)

# Afamin/Wnt3a CM increased Lgr5 Positive Stem Cells Expressed td Tomato




These data obtained from collaboration with Dr. Sato, Keio Univ.

**Images on the top panels show** bright field of human color organoids. Images on the bottom panels show fluorescent LGR5 positive stem cells that express td tomato regulated by Lgr5 promoter. Afamin/Wnt3a CM maintained LGR5 positive stem cell growth is seen at greater levels compared with cell growth in commercial recombinant Wnt3a (300ng/mL).

## Product Highlight

| Product Code # | Product Name |
|---|---|
| J2-001 | Afamin/Wnt3a CM* |

*Afamin/Wnt3a CM is a product of JSR Life Sciences.

## References

Li, Youxian, et al. “Identification of trypsin-degrading commensals in the large intestine.” Nature 609.7927 (2022): 582-589.

K. Nanki, *et al.*, Ryosaka, Makoto, Shin-Ichi Mae, and Kenji Osafune. “Protocol for the generation and expansion of human iPS cell-derived ureteric bud organoids.” STAR protocols 3.3 (2022): 101484.

Kim, D., Yoon, Y.-J., Choi, D., Kim, J., & Lim, J.-Y. (2021). 3D organoid culture from adult salivary gland tissues as an ex vivo modeling of salivary gland morphogenesis. Frontiers in Cell and Developmental Biology, 9.

Wang, Z., Guo, Y., Jin, Y., Zhang, X., Geng, H., Xie, G., Ye, D., Yu, Y., Liu, D., Zhou, D., Li, B., Luo, Y., Peng, S., & Li, J. (2021). Establishment and drug screening of patient-derived extrahepatic biliary tract carcinoma organoids. Cancer Cell International, 21(1).

*For most up to date product information and protocols, please visit mblintl.com.

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