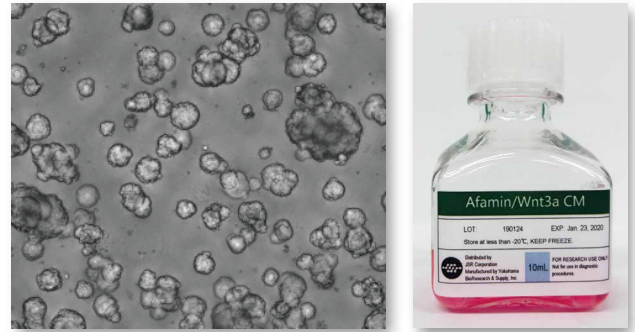


Afamin/Wnt3a CM

for Organoid culture

- Serum Free
- Stabilized Wnt3a
- High Activity



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 (AFM), which is one of the components of serum (Figure 2A). In addition, by using Afamin and Wnt3a complex for organoid culture, long-term culture of organoid becomes possible (Figure 2B). This new medium will result in optimal success for your organoid experiments.

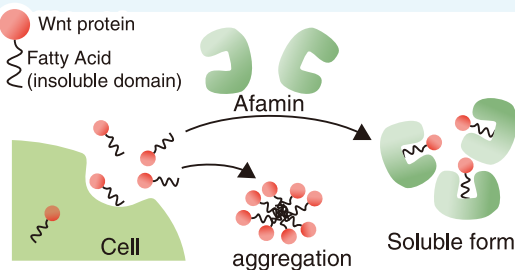


Figure 1: Mechanism of Wnt3a stabilization by Afamin proteins

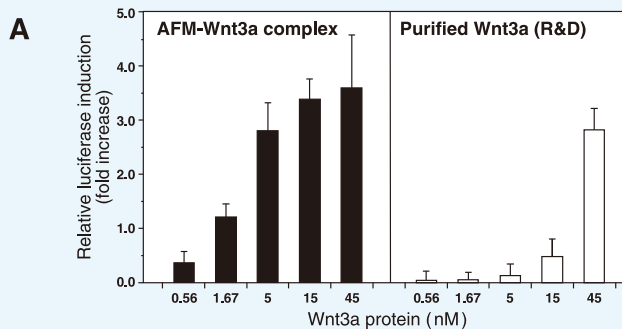
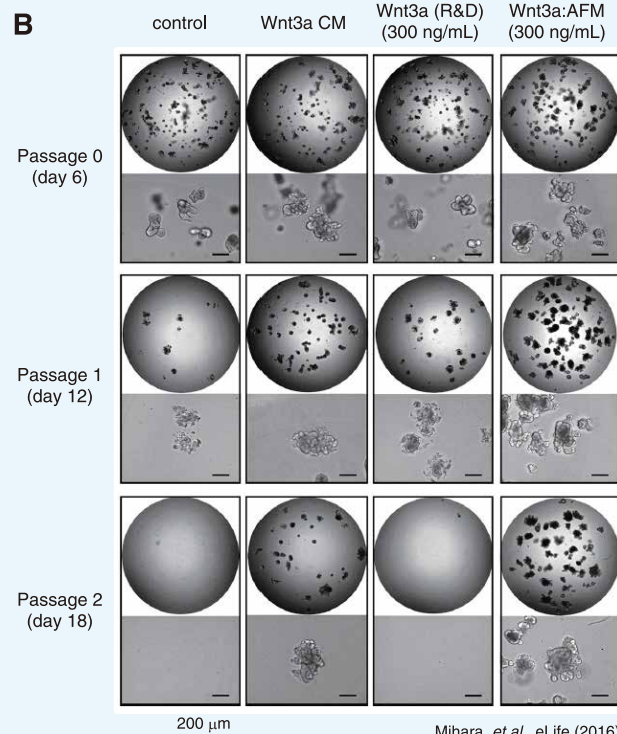
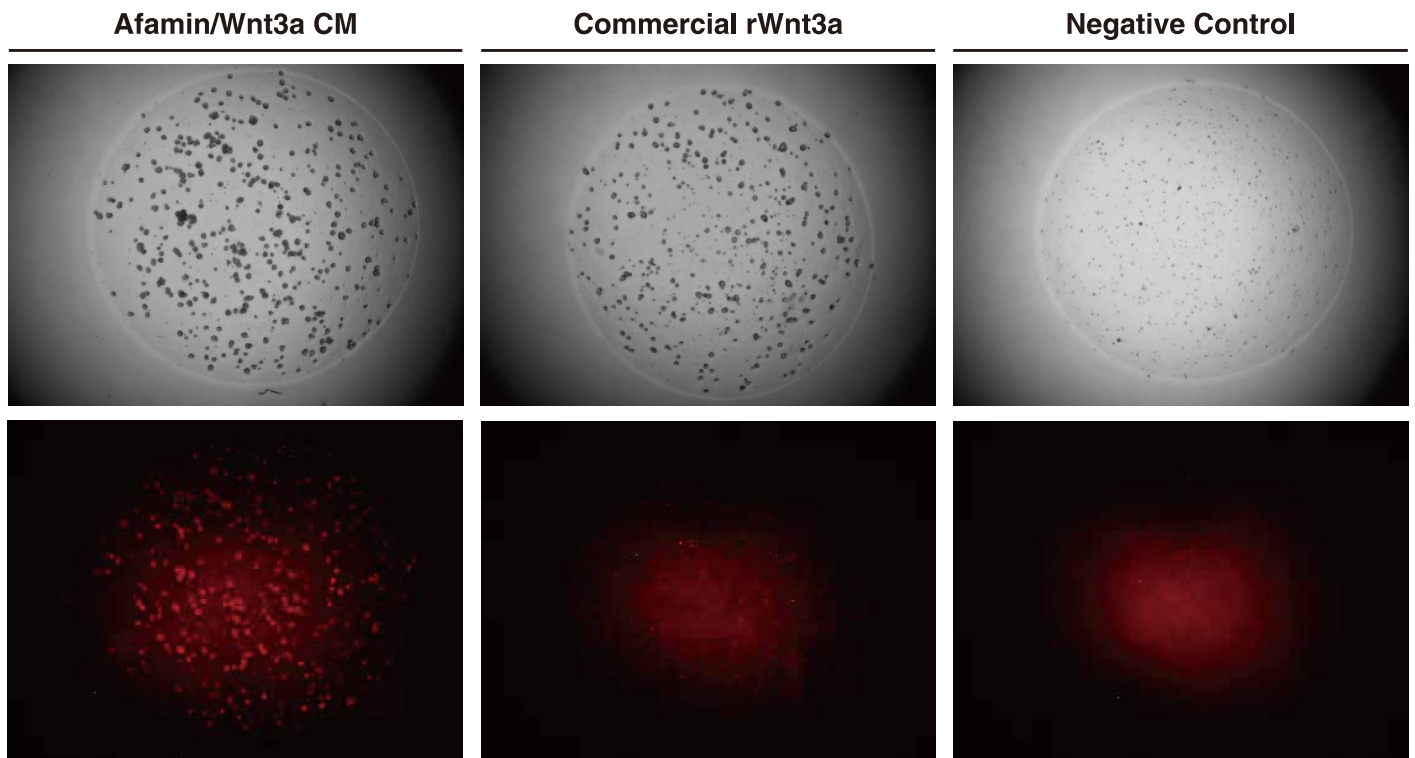


Figure 2: Wnt3a in complex with AFM is biologically active.



Afamin/Wnt3a CM increased LGR5 Positive Stem Cells Expressed tdTomato



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

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

Product Highlight

| Code No. | Product Name | Main Components | Solvent | Size |
|------------|-----------------|-----------------------------|------------------------|-------|
| J-ORMW301R | Afamin/Wnt3a CM | Mouse Wnt3a Human Afamin | Advanced D-MEM/F-12 | 10 mL |

References

- 1) E. Mihara, *et al.*, Active and water-soluble form of lipidated Wnt protein is maintained by a serum glycoprotein afamin/ α -albumin., *eLife* 5 (2016)
- 2) K. Nanki, *et al.*, Divergent routes toward Wnt and R-spondin niche independency during human gastric carcinogenesis., *Cell* 174 (2018)
- 3) S. Sugimoto, *et al.*, Reconstruction of the human colon epithelium in vivo., *Cell Stem Cell* 22 (2018)
- 4) T. Seino, *et al.*, Human pancreatic tumor organoids reveal loss of stem cell niche factor dependence during disease progression., *Cell Stem Cell* 22 (2018)

