

## Production of monoclonal immunoglobulin A for high profile functional food

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We are planning to make “edible antibodies” as a high profile functional food for treatment and prevention of diseases. As a model case, we have made mouse immunoglobulin A (IgA)-class monoclonal antibodies (mAb) specific to the binding subunit of Shiga toxin using mouse nasal-associated lymphoid tissues (NALT). We have cloned immunoglobulin genes and binary vector constructs are currently prepared for the expression in plant system. Immunization through NALT is useful for the production of IgA mAb, thus we have succeeded in production of ones against cholera toxin as well as those against ovalbumin (OVA). An IgA mAb (A11F4) against OVA forms dimer, and BIACORE analysis revealed relatively low affinity under a capture method. Nevertheless, this mAb will be useful for studying food allergy. As another example, we are trying to produce IgA mAb against *Legionella pneumophila* (*Lpn*). We found A/J strain, which has mutated Naip5 cytoplasmic pattern recognition receptor, induced much higher IgA response against *Lpn*. Unexpectedly, the elevated IgA response was accompanied by T-helper 1 (Th1)-polarized immune responses.

### REFERENCES

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