Shinobu FUJIMURA, Ph.D.

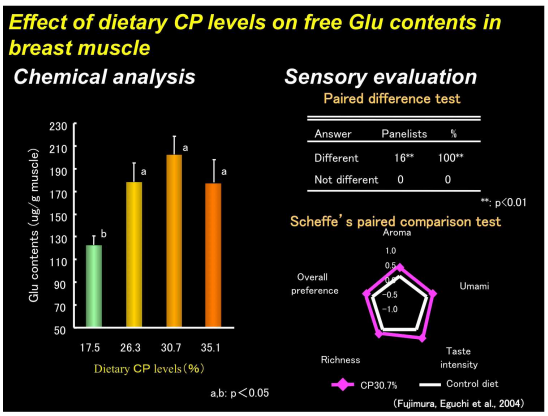
Associate Professor
Program: Life and Food Sciences
Area: Applied Life and Food Sciences
Undergraduate: Dept. of Applied Biological Chemistry

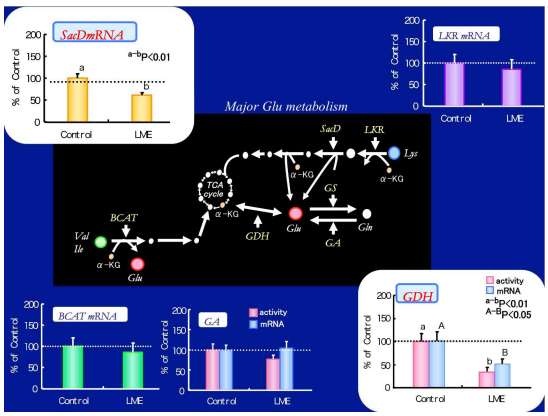
Professional Expertise

- **Regulation of Taste Active Components of Meat by Dietary Nutrients**
- **Amino Acid Metabolism in Muscle**
- **Quality Assay of Food Taste**
  - Chemical Analysis, *e.g.* Amino acids, ATP metabolites, and mineral
  - Sensory Evaluation
  - Taste Sensing System

Research Fields of Interest

Dietary nutrients play a significant part in determining growth rate and meat yield. It is known that the compositions of protein and total amino acid of meat are invariable by feeding treatment, hence the meat taste is considered to be invariable. However, the relationship of taste components of meat with nutrients is not fully elucidated, and there have been few reports on the effect of feeding treatments on taste active components of chicken meat. Previously, restricted feeding and dietary low metabolizable energy levels decreased the free glutamic acid (Glu) contents of meat, and the meat taste was deteriorated (Fujimura *et al.*, 1997, 2001). In the present study, the effect of dietary protein and amino acid levels before marketing on broiler meat composition, *i.e.,* free amino acids and ATP metabolites, and sensory score were studied using broilers. As a result, free Glu and sensory score in meat were increased in high protein diet (Kobayashi *et al.*, 2011). Then, branched amino acids and some amino acids were recognized as regulatory amino acids for meat taste (Imanari *et al.*, 2007, 2008). And now, we study the regulatory mechanisms using enzyme activity and mRNA expression in muscle for improves the meat quality.





Education

1995: Ph.D., Niigata University

Professional Societies and Activities

1. Japanese Society of Amino Acid Science
2. World's Poultry Science Association
3. Japanese Society of Animal Science

Major Publications

Papers

[1] Kai S, Kubota M, Kadowaki M, Fujimura S, Effect of Dietary Histidine on Contents of Carnosine and Anserine in Muscles of Broilers, *Animal Science Journal*, **in press**.

[2] Watanabe G, Kobayashi H, Shibata M, Kadowaki M, Fujimura S, Regulation of Free Glutamate Content in Meat by Dietary Lysine in Broilers, *Animal Science Journal*, **82**, 1, 86-92, 2011.

[3] Perenlei G, Tojo H, Okada T, Kubota M, Kadowaki M, Fujimura S, Effect of Dietary Astaxanthin Rich Yeast, *Phaffia Rhodozyma*, on Meat Quality of the Broiler Chicken , *Animal Science Journal*, **85**, 895-903, 2014.

[4] Hashizawa Y, Kubota M, Kadowaki M, Fujimura S, Effect of Dietary Vtamin E on Broiler Meat Qualities, Color, Water-holding Capacity and Shear Force Value, under Heat Stress Conditions, *Animal Science Journal*, **84**, 732-736, 2013.

[5] Kim YJ, Nishiumi T, Fujimura S, Ogoshi H, Suzuki A, Combined Effects of High Pressure and Sodium Hydrogen Carbonate Treatment on Pork Ham: Improvement of Texture and Palatability, High Pressure Research, 33(2), 354-361, 2013.

[6] Kobayashi H, Takano W, Eguchi A, Shibata M, Kadowaki M, Fujimura S, Regulation of muscular glutamate metabolism by high-protein diet in broiler chicks, *Animal Science Journal*, **82**, 1, 86-92, 2011.

[7] Imanari M, Kadowaki M, Fujimura S, Regulation of Taste-active Components of Meat by Dietary Branched-chain Amino acids -Application of Branched-chain Amino Acids Antagonism, *British Poultry Science*, **49**, 299 – 307, 2008.

[8] Imanari M, Kadowaki M, Fujimura S, Regulation of Taste-active Components by Dietary Leucine, *British Poultry Science*, **48**, 167 – 176, 2007.

[9] Gene Expression of Myostatin during Development and Regeneration of Skeletal Muscle in Japanese Black Cattle. Shibata M, Matsumoto K, Aikawa K, Muramoto T, Fujimura S, Kadowaki M, *Journal of Animal Science*, **84**, 2983-2989, 2006.

[10] Fujimura S, Sakai F, Kadowaki M, Effect of Restricted Feeding before Marketing on Taste Active Components of Broiler Chickens, *Animal Science Journal*, **72**, 223-229, 2001.

[11] Fujimura S, Muramoto T, Do-ura I, Koga H, Itoh H, Tone N, Kadowaki M, Ishibashi T, Effect of Feeding Area and Feed Intake on Meat Compositions and Taste Relating Components of Broiler Chickens, *Japanese Poultry Science*, **34**, 373-381, 1997.

[12] Fujimura s, Koga H, Takeda H, Tone N, Kadowaki M, Ishibashi T, Role of Taste-Active Components, Glutamic Acid, 5'-Inosinic Acid and Potassium Ion in Taste of Chicken Meat Extract, *Animal Science and Technology*, **67**, 423-429, 1996.

[13] Fujimura S, Kawano S, Koga H, Takeda H, Kadowaki M, Ishibashi T, Identification of Taste-Active Components in the Chicken Meat Extract by Omission Test - Involvement of Glutamic Acid, IMP and Potassium Ion, *Animal Science and Technology*, **66**, 43-51, 1995.

International Congress (2006-)

[1] Kai S, Kubota M, Kadowaki M, Fujimura S, Dietary Histidine Level alters Contents of Carnosine and Anserine in Muscle of Broiler Chicken, XIVth European Poultry Conference, 524, 2014, Stavanger, Norway.

[2] Watanabe G, Shibata M, Kadowaki M, Fujimura S, Free Glutamate Content of Meat is Regutlated by Lysine Degradation Pathway in Muscle, Proc. 19th Europ. Symp. Poult. Nutr., Potsdam, Germany, 2013.

[3] Perenlei G, Kubota M, Kadowaki M, Fujimura S, Effects of Dietary Astaxanthin Rich Yeast Phaffia Rhodozyma on Meat Quality of Broiler Chicken, Proc. 19th Europ. Symp. Poult. Nutr., Potsdam, Germany, 2013.

[4] Hashizawa Y, Kadowaki M, Fujimura S, Effect of Dietary Antioxidant on Meat Quality under Heat Stress Condition, *57th Int. Cong. Meat Sci. Technol.*, Belgium, 2011. *Best Poster Award.

[5] Kuwabara M, Sagara T, Noguchi G, Kadowaki M, Fujimura S, Evaluation of Meat Taste using Taste Sensor and Sensory Evaluation, *57th Int. Cong. Meat Sci. Technol.*, Belgium, 2011.

[6] Hashizawa Y, Kadowaki M, Fujimura S, Effect of Dietary Selenium on Quality and Antioxidation of Broiler Meat, *56th Int. Cong. Meat Sci. Technol.*, Korea, 2010.

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[8] Kobayashi H, Takano W, Eguchi A, Shibata M, Kadowaki M, Fujimura S, Effect of Dietary Protein Level on Meat Quality and Glutamate Metabolism in Breast Muscle, *55th Int. Cong. Meat Sci. Technol.*, Kopenhagen, 2009.

[9] Itoh Y, Kadowaki M, Fujimura S, Effect of Dietary Lysine Levels on Taste Active Components of Meat, *55th Int. Cong. Meat Sci. Technol.*, Kopenhagen, 2009.

[10] Kobayashi H, Takano W, Eguchi A, Shibata M, Kadowaki M, Fujimura S, Effect of High Protein Diet on Meat Quality and Glutamate Metabolism in Breast Muscle, *Proceedings of XIII AAAP Asian Australian Anim. Sci. Cong.*, Hanoi, 439-440, 2008.

[11] Fujimura S, Nutrition to Improve the Meat Taste. *Proceedings of the 16th European Symposium of Poultry Nutrition*, 659-666, Strasburg, 2007. (Invited)

[12] Kobayashi H, Eguchi A, Takano W, Shibata M, Kadowaki M, Fujimura S, Effect of Dietary Protein Levels on Muscle Free Glutamic Acid Contents and their Regulation Mechanism. *Proc. 53rd Int. Cong. Meat Sci. Technol.*, Beijing, 379-380, 2007.

[13] Imanari M, Kadowaki M, Fujimura S, Regulation of Taste-active Components by Dietary Branched Chain Amino Acids. *Proc. XII AAAP Asian Australian Anim. Sci. Cong.*, Korea, 2006.

[14] Fujimura S, Eguchi A, Kobayashi H, Takano W, Kadowaki M. Improvement of Meat Taste by Dietary Protein Levels, *Proc. XII AAAP Asian Australian Anim. Sci. Cong.*, Korea, 2006.

[15] Shibata M, Matsumoto K, Aikawa K, Muramoto T, Muroya S, Oe M, Nakajima I, Chikuni K, Fujimura S, Kadowaki M, Myostatin and Adipogenic Transcription Factor Expressions During Skeletal Muscular Growth of Japanese Black Cattle. *Proc. 52nd Int. Cong. Meat Sci. Technol.*, Ireland, 2006.