

ABOUT CCL

The Cereal Chemistry Laboratory (CCL) is a multifunctional lab in Kansas State University's Department of Grain Science and Industry. Located in Shellenberger Hall, the CCL has professional staff and well-equipped facilities to conduct research related to cereal science and grain-based products. We work closely with other departments, universities and industries to provide research, consulting, training and testing services related to cereal products.

VISION, MISSION, AND GOAL STATEMENT

Vision: Be a key resource in cereal chemistry research and education.

Mission: Provide excellence in research and education in cereal chemistry.

Goals: Develop nutritious and innovative cereal grain foods and food ingredients and provide relevant education and meaningful technical service.

MEET THE INDUSTRY NEEDS

We have professional staff with access to well-equipped facilities to carry out short- and long-term research projects for industries in the area of cereal science and chemistry. Additionally, we provide technical consulting and testing related to cereal products.

PRINCIPLE INVESTIGATOR

Dr. Yonghui Li
Assistant Professor
312 Shellenberger Hall
yonghui@k-state.edu
785-532-4061

CONTACT US

Cereal Chemistry Laboratory
212/213 Shellenberger Hall
Department of Grain Science and Industry
1301 Mid-Campus Drive North
Kansas State University
Manhattan, KS 66506
grains.k-state.edu/ccl

KANSAS STATE
UNIVERSITY



GRAIN
SCIENCE
AND INDUSTRY



KANSAS STATE
UNIVERSITY

LAB CAPABILITY

Long-term contract research (>6 months)

Cereal science- and chemistry-related research, including cereal grains and individual component processing, fractionation, modification, analysis, and cereal food development and testing.

Short-term contract research (1-6 months)

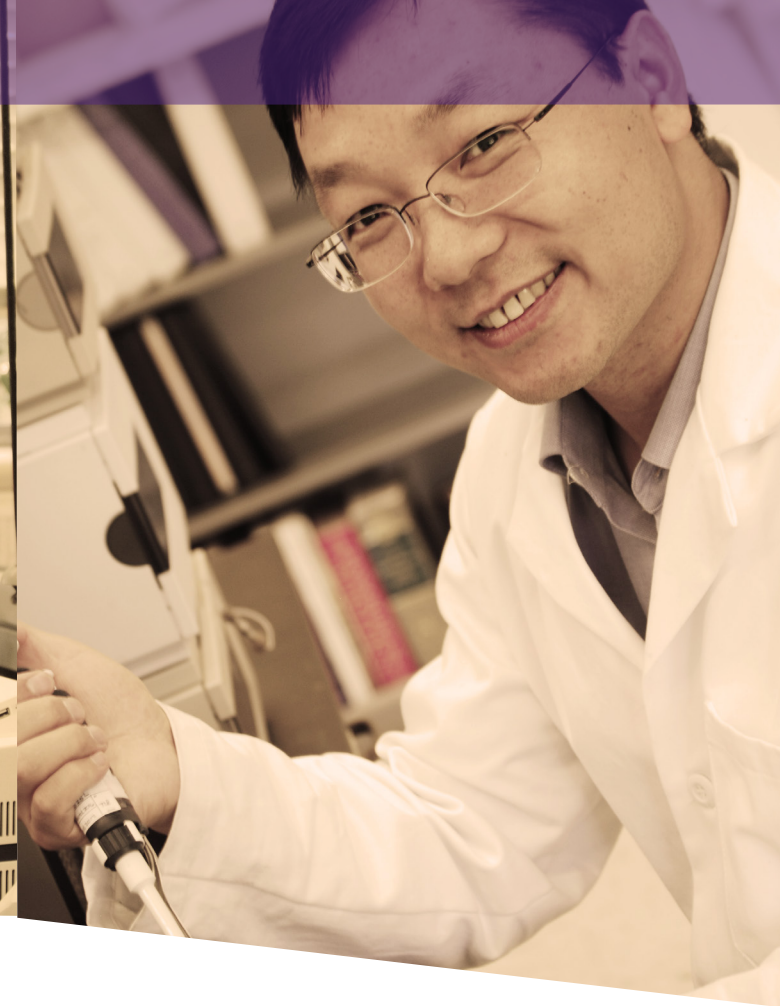
Preliminary testing and feasibility studies of those mentioned in long-term research. The short-term research also includes the services of scientific literature compilation, use of our facilities and technical assistance.

Technical consults

Provide information and technical solutions to solve problems related to cereal science and grain-based products.

Testing and measurements

- Sample preparation: refrigerator, freezer, centrifuge, freeze drier, rotary evaporator, sonicator, homogenizer, dialysis, shaker water bath and ducted fume hood.
- Protein characterization: HPLC, gel electrophoresis, UV-Vis spectrophotometer, FTIR, protein content, solubility and isoelectric point.
- Flour/dough testing and baking: farinograph, mixograph, Amylograph, water activity, extensigraph, viscoelasticity, pH, moisture measurement, water-holding capacity, baking facilities, texture analysis and loaf volume.
- Other accessible facilities: milling equipment, differential scanning calorimetry (DSC), thermogravimetric analyzer (TGA), dynamic rheometer, Brookfield viscometer, particle size analyzer, Instron, atomic force microscopy (AFM), scanning electron microscopy (SEM), transmission electron microscopy (TEM), GC, MS and NMR.



RESEARCH INTERESTS

- Cereal protein chemistry, modification and functionality
- Biologically active cereal proteins and peptides
- Functional cereal foods and whole grains
- Cereal food innovation, including gluten-free products
- Ancient grains
- Food nanotechnology

TECHNICAL EXPERTISE

- Cereal and grain science
- Protein and lipids chemistry
- Biopolymers structure and property relationships
- Baking science and flour/dough/bakedgoods testing
- Instrumental analysis
- Nanomaterials and nanotechnology