**Introduction**

Pathology is the study of diseases and of the changes that they cause. We have focused on the mechanism(s) of diseases, with special interests to inflammation and inflammation related cancer. Our goal is to establish the new strategy for the treatment of diseases based on the scientific evidence.

**Inflammation and diseases**

The innate immune system provides immediate defense against infection and serves as the first-line of host defense during infection. The recruitment and activation of leukocytes are essential in innate immunity, an event that is governed by a variety of chemical mediators including cytokines. Evidence indicates that excessive production of inflammatory cytokines is critical for the initiation and progression of diseases. It is well known that inflammatory responses are regulated by multiple steps. Dysregulation of inflammation may cause many diseases including cancer.

Advances in inflammation biology appear to pave the new therapeutic strategy for the treatment of clinical inflammatory and inflammatory-associated diseases.

**Research Projects**

1. Molecular mechanism of Inflammation and Inflammatory diseases
2. Cytokine signal transduction in inflammation
3. Inflammation and cancer
4. Role of cytokines and chemokines in health and disease
5. Cancer regulation by exosomes and miRNA
6. New strategy for cancer stem cell treatment focused on iron regulation.
7. Development of innovative medical materials and devices
8. Development of artificial intelligence supported medical devices

**Representative research methods**

- Cell culture
- ELISA
- Cell separation
- FACS
- Animal experiments
- Western blot
- Immunohistochemistry
- RealTime PCR
- Immune-precipitation
- siRNA

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**Division of Biopathological Sciences**

**Department of Pathology and Experimental Medicine**

**Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Okayama University**

**Department of Pathology and Experimental Medicine,**

**E-mail amatsu@md.okayama-u.ac.jp**  URL http://www.okayama-u.ac.jp/user/byouri/pathology-1/HOME.html