## Dr. Witchuda Payuhakrit, Ph.D.

**Research topic : Natural products and cancer treatment**

The research focus on using natural products which involved the use of phytochemicals and even whole plan extracts to prevent, combat or reverse the processes of cellular and molecular in carcinogenesis as a chemopreventive treatment to inhibit cancers. Current research topics mostly emphasized on how natural products can modulate inflammatory pathways and thus affect the survival, proliferation, invasion, angiogenesis, and metastasis of the cancer.

**Research interests :**

- Cancer Immunology
- Natural products and cancer prevention
- Natural products and aging prevention

## Dr. Nisamanee Charoenchon, Ph.D.

**Research Topic : Photobiology and tissue repairing**

**Rationale and Research Methodology :** Chronic solar ultraviolet (UV) exposure leads to cutaneous photoaging and is associated with remodeling of dermal extracellular matrices (ECMs), particularly collagenous matrix and the elastic fibers. Image analysis, immunohistochemistry and related assays would be applied in our experiments.

**Research interests :**

- Dermal ECMs repairing in vitro and in vivo
- Protective mechanism of natural products on photoaged skin .

## CONTACT


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Pathobiology MAHIDOL


# Pathobiology Research

## Asst. Prof. Prasit Suwannalert, Ph.D.

**Research Topic : Free radicals and pathological changes**

**Rationale and Research Methodology :**

An imbalance between radicals and anti-radicals capacity has been proposed to play an important role in the progression of pathological changes. Oxidative stress is considered a major contributor to various pathologies including aging and cancers. The research is on the fields of antioxidants and natural products prevent pathological changes of aging and cancers.

**Scopes of the research :**

- Antioxidants of natural products
- Oxidative stress and cancer progression
- Anti-melanogenesis

## Assoc. Prof. Wannee Jiraungkoorskul, Ph.D.

**Research Topic : Aquatic toxicopathology**

**Rationale and Research Methodology :**

Aquatic toxicology is the study of the toxic effects of chemicals and other anthropogenic materials on aquatic organisms. Moreover, little is known about the efficiency of Medicinal Plants/Herbs reducing toxic agents on these organisms. In our laboratory, we evaluated the efficiency of those herbs on aquatic organisms in the term of growth rate, hematology, biochemistry, nuclear abnormality, structure and ultrastructure studies, etc. The findings of this study can be used as guidelines for developing programs to help the aquatic animals, which are cultured near the polluted areas.

**Scope of research :**

- Cytotoxicity test by brine shrimp or earthworm
- Phytochemical analysis
- Structure and ultrastructure studies

## Asst. Prof. Amornrat Jensen, Ph.D.

**Research Topics : Discovering for novel therapeutic strategies**

Our laboratory's mission is to apply knowledge drawn from using model system to understand the molecular pathology of diseases as well as molecular mechanisms of drug treatment. The ultimate goal is to search for novel therapeutic strategies in various areas including

- Targeted therapy for genetic diseases
- Synergistic drugs for malaria
- Novel anti-cancer agents

## Dr. Niwat Kangwanrangsan, Ph.D.

**Research Topic : Cell and molecular biology of Plasmodium infection**

**Rationale and Research Methodology :** Malaria is a serious tropical disease caused by infection with Plasmodium parasites that are transmitted via Anopheles mosquitoes. Even under the malaria control programs, billions of people mainly in the tropical countries are still at risk for this infectious disease. Screening of novel drugs and vaccine development together with the study of parasite biology would be the key researches for malaria elimination. We are focusing on the parasite/host at the infective stages and transmission. Our current research topics are as follow:

- Biology of Plasmodium infection and transmission-blocking vaccine development
- *P. vivax* liver stage development in humanized mouse model
- Study of Plasmodium gene function by genetic manipulation
- Anti-malarial activity of Thai medicinal plants

## Lect. Somphong Narkpinit, M.D.

**Research topic : Aging control in dermatology**

**Rational and Research methodology :** Skin changes are among the most visible signs of aging. Evidence of increasing age includes wrinkles and sagging skin. Aging caused by the genes we inherit is called *intrinsic* (internal) *aging*. The other type of aging is known as *extrinsic* (external) *aging* and is caused by environmental factors. UV irradiation and aging both lead to increased ROS production, This results in dysregulation of intracellular and extracellular homeostasis that can modify cellular behavior and cell-matrix interactions as well, thus leading to an impaired function of the skin. Therefore it's need to find for more mechanism of skin aging and the effective substances for correct the process of skin aging.

## Dr. Pornthip Chaichompoo, Ph.D.

**Research topic : Pathophysiology of blood cells in thalassemia**

**Rationale and Research Methodology :**

Thalassemia, defect of globin synthesis leads to anemia and other complications such as iron overload, cellular oxidative stress, thrombosis and abnormal immunity. Researcher and team are investigating the mechanisms of pathophysiology in thalassemia and also the effects of treatment on disease progressive.

**Research interests :**

1. Coagulation and inflammation pathway
2. Immunity to infection
3. Oxidative stress and cell injury
4. Biomarkers for disease severity