



**The 23<sup>rd</sup> International Symposium on Polar Sciences**  
***Life at the Extremes: Resilience, Adaptation and Application Potential***

May 17-18, 2017  
Korea Polar Research Institute, Songdo, Incheon  
Republic of Korea

## **Second Circular**

The International Symposium on Polar Sciences has been held annually ever since the conception of Korea's Antarctic research schemes. This Symposium not only serves as an international forum bringing polar scientists together to exchange views and ideas, but also provides an opportunity to discuss collaborative research with peers and colleagues. Marking the 23<sup>rd</sup> series of this symposium, this year's theme is "Life at the Extremes: Resilience, Adaptation and Application Potential" and will be held in Incheon on May 17-18, 2017.

### **THEME**

Antarctic Horizon Scan identified "learning how Antarctic life evolve and survived" as one of the six most important research questions for the next 20 years and beyond. Polar genomics is also one of the research initiatives KOPRI recently opted to invest more efforts in. In this regard, the theme of the 23<sup>rd</sup> International Symposium on Polar Sciences is timely set; "*Life at the Extremes: Resilience, Adaptation and Application Potential.*" We cordially invite you to share your knowledge and understanding to reveal the unknowns of the life in polar region.

### **SESSIONS**

The following six sessions are proposed;

#### **Genomic and physiological studies of microorganisms living in extreme environments**

Microorganisms living in the most inhospitable environments are called extremophiles. This session will present recent studies on extremophiles, ranging from genomic and physiological studies to their potential applications. These studies on extremophiles can provide insights to understand how organisms adapt to extreme environments and survive under harsh conditions. The roles of extremophiles in the environment and their importance will also be highlighted. The findings of these studies will be the foundation for novel industrial applications of extremophiles.

### **Adaptation of photosynthetic organisms to freezing environments**

This session will describe the molecular adaptation strategies of polar photosynthetic organisms in extreme environments. In particular, the genetic and physiological characteristics of microalgae, mosses and higher plants living in polar region will be discussed.

### **Genomic and physiological adaptation in polar animals**

Biological adaptation means evolutionary adjustment of morphology, physiology, ecology, and genomics to the environment. This session will address aspects of genomics and physiology of polar animals with emphasis on evolutionary cold adaptation. This opportunity will improve our understanding on biological strategies of polar marine organism to the extreme environment.

### **Evolution: From fossils to genomics**

In Antarctica, warm temperate Gondwana lineages were generally considered to have become extinct. However, many studies on fossils, classification and genetics reveal that some are surviving and evolving to be endemic lineages in a frozen continent. Antarctic species are the best models to show evolutionary history and to predict how species and ecological interactions cope with current climate change.

### **Marine food web: Prey-predator**

Antarctic krill and fish are keystone species which are the major food source for wildlife. This session will deal with key ecological traits of krill and fish-based food web of the Antarctic ecosystem. The focus will be on krill distribution, foraging behavior of seabirds and food web structure.

### **Cold-adapted proteins and metabolites: from molecular cloning to biotechnology**

This session will present the recent studies on proteins and metabolites involved in cold-adaption mechanisms of Polar organisms. The focus will be on studies addressing structure-function relationship of antifreeze substances, search method and function of the cold-active enzyme, development of new medicine and substance using metabolites and natural compounds from Polar organisms and various cases of metabolic engineering.

## **SIDE MEETING**

Side meetings will take place to make use of the occasion of the 40<sup>th</sup> Antarctic Treaty Consultative Meeting (ATCM) which will take place following this symposium. Side meetings will provide a platform to exchange ideas with experts on topics such as “The Antarctic Treaty System (ATS) for the designation of Marine Protected Area (MPA)” and “The conservation of marine living resources.”

## **ABSTRACT SUBMISSION**

Please submit your abstract at the symposium website (<http://symposium.kopri.re.kr>) no later than March 17, 2017.

## **REGISTRATION**

Please register at the symposium website (<http://symposium.kopri.re.kr>) no later than April 17, 2017.

If you have any questions, please do not hesitate to contact us at ([symposium@kopri.re.kr](mailto:symposium@kopri.re.kr)).

We look forward to your participation.

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