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The National Natural Science Foundation of China and the Epithelial Cell Biology Research Center

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Although it has been only a couple of years since the establishment of the Epithelial Cell Biology Research Center, the first of its kind ever founded in China, the planning for the center establishment and the involvement of the National Natural Science Foundation of China (NSFC) goes way back to more than eight years ago. I jointed the Faculty of Medicine of the Chinese University of Hong Kong (CUHK) in 1993 after my postdoctoral training in the US. I started to pay frequent visits to different institutions in the Mainland China hoping to find potential collaborators. It was to my great surprise, however, that I was not able to find anyone working in the area of epithelial transport in all the major universities and institutions that I visited. I was disturbed by this unbelievable finding, and in one occasion, I mentioned this to an officer of NSFC visiting Hong Kong. That was the beginning of my long relationship with NSFC and the involvement of NSFC in nurturing and supporting the development of epithelial cell biology related research in China.

Epithelial cells form a diverse group of tissues which cover or line almost all body surfaces, cavities and tubes. Epithelia act as interfaces between different biological compartments and mediate a wide range of activities such as selective diffusion, absorption and/or secretion, physical protection as well as host defence and immune responses. The large number of the organs/glands lined by epithelia, such as the airways, GI tract, reproductive tract and exocrine glands, points to an important role of epithelial cells in various organ/tissue functions. Disturbances of epithelial cell functions give rise to a wide spectrum of common disorders such as diarrhoea and lethal diseases including cancers. As the interfaces between different biological compartments, epithelia are able to modulate a variety of organ/tissue functions, physiological events and pathological processes that are pertinent and of great interest to a wide range of disciplines including physiology, cell biology, molecular biology, developmental and reproductive biology. Therefore, epithelial cell biology has been considered an interface with multi-disciplines in life sciences[1]. In China, however, systematic and multi-disciplinary approach in epithelial cell biology research is yet to be developed.

In order to promote multi-disciplinary basic research in epithelial cell biology and related fields of life sciences in China, the concept for the establishment of an epithelial cell biology research center as a base for international collaborative research, academic exchange and technical training in China was conceived. During all this time, NSFC played an active role in promoting epithelial cell biology in China. The former Director of NSFC, Professor Zhang Chunhao, and other officers took the time to listen to the report on the current status of epithelial cell biology related research in China and to arranged discussion among experts from different disciplines. The consensus merged from the discussions was that epithelial cell biology should be considered as a prioritised research area and that a research center to promote related research would be necessary. The final establishment of the research center also gained momentum from the help of NSFC, which was the recommendation of a joint collaboration between the Chinese University of Hong Kong and Academy of Military Medical Sciences in Beijing. With the help and support of NSFC, the joint effort between the two institutions finally led to the establishment of the Epithelial Cell Biology Research Center in 1999, with members from over twenties institutions throughout China and the world.

Since its establishment, the Center has played an

active and leading role in the field, generating collaborating projects with support from various funding agencies including the CONRAD Program of USA. The success of the collaboration has been highlighted by a recent discovery published by Science[2]. The center also acts as a training center for young scientists from different parts of China by providing the following training and research programs:

Functional genomics: functional elucidation of novel genes in the male reproductive tract

Exocrine physiology: transport mechanisms and regulation in GI and reproductive tracts

Immunology: mucosal defense mechanisms and epithelial cell-mediated immune regulation

Cancer biology: signal transduction mechanisms in carcinogenesis and cancer metastasis

The Epithelial Cell Biology Research Center owns its every success to the support of NSFC. Without the strong support of NSFC leadership and the help from NSFC officers at different levels, the establishment and development of the Center would not have been possible. Supported and promoted by NSFC, epithelial cell biology related research in China has taken the first step forward and is currently making progress. We believe that with the continuing support of NSFC, the Epithelial Cell Biology Research Center will continue to grow and be the corner stone for future development of epithelial cell biology and related research in China and the world.

References

[1] Chan H. C. Epithelial cell biology: an interface with multidisciplines in life sciences. Cell Biol. Int., 2001, 25: 991—992.

[2] Li P., Chan H. C., He B. et al. An antimicrobial peptide gene found in the male reproductive system of rats. Science, 2001, 291:1783—1785.

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References

[1] Yu Guangming. Nonlinear principle, monitoring and control of stratum subsidence[supported by Publishing Funds of National Natural Science Foundation]. Changchun: Jilin University Publishing House, 2000,10.

[2] Yu Guangming, Zhao Jianfeng. Study on application of the laws and mechanisms of subsidence in rock masses influenced by mining, The 11th Congress of the International Society of Mining Surveyors,Cracow,Poland, 2000, 197—204.

[3] Yu Guangming, Xie Heping, Zhao Jianfeng. Fractal evolution of a crack network in overburden rock stratum. Discrete Dynamics in Nature and Society, 2000, (5): 47—52.

[4] Yu Guangming, Xie Heping. Study on the fractal character of geological fracture surface. Coal Journal, 1996, 21(5): 459—463.

[5] Xie Heping, Yu Guangming. The influence of proximate fault morphology on ground subsidence due to extraction, Int. J. Rock Mech. Min. Sci., 1998, 35(8):1107—1111.

[6] Yu Guangming, Xie Heping, Yang Lun and others. Numerical simulation of fractal effect of mining-caused fault activation. Coal Journal, 1998, 23(4): 42—46.

[7] Haken. Morphology Embryology, Chengdu: Sichuan Educational Publishing House, 1992.

[8] Qin Siqing and others. Guide to Nonlinear Engineering Geology. Chengdu: South-west University of Communications, 1993.