

DNA Staining Reveals the Existence of the Meridian Sub Systems

by Attilio D'Alberto

For a free subscription to Chinese Medicine Times, click on the link: www.chinesemedicinetimes.com

A previous article in *Acupuncture Today* referred to an unpublished research article by Jiang *et al.* (2004) that aimed to find the existence of the meridians (D'Alberto 2005). Now, further research in South Korea has revealed the existence of the meridian subsystems using DNA-staining (Shin *et al.* 2005). The Shin *et al.* (2005) study in part, replicated the original discovery made in 1963 by Bonghan Kim in North Korea. The validity of Kim's study has been disputed since then, but several recent studies confirm that he may have been correct (Cho *et al.* 2004, Lee *et al.* 2004a, Lee *et al.* 2004b).

Bonghan Kim's study involved the use of a secret staining formula to isolate the meridians. This formula was lost with Bonghan Kim's death. Pierre de Vernajoule replicated part of Bonghan Kim's study in humans during the mid 1980s as did Giovanardi, Lonardo, and Abbati in 1992. Later in 2004 Lee BC *et al.* developed an acridine orange fluorescence method that isolated the subsystem ducts and allowed them to be distinguished from fibrin threads. Until now, the subsystem ducts were usually mistaken as being coagulated fibrin threads during surgery. These ducts were further isolated on the internal organs. Shin *et al.* (2005) used a DNA-staining method (Feulgen reaction) to differentiate these ducts from lymph vessels.

So why was the meridian subsystem duct network not found until now? Shin *et al.* (2005) argue that these structures are very small, cannot be easily detected with the naked eye or with a low-magnification surgical microscope, are semitransparent and are commonly mistaken for lymph vessels. The difference between these threadlike ducts and the lymph vessels is that the threadlike ducts are found in bundles whereas the lymph vessels are known to be singular tubes. The threadlike ducts house granules which also contain DNA, whereas lymph vessels do not. In addition, the threadlike tissues can move freely as they are not fixed to the surface of the internal organs. This is in contrast to the lymph vessels, which cannot move freely as they are fixed to the surface of the internal organs. Lastly, the threadlike sub ducts contain 1 μ m sized granules whereas lymph vessels carry 5 μ m or larger lymphocytes.

Many researchers of acupuncture believe that acupuncture works via neurophysiological mechanisms, involving segmental, intersegmental and supraspinal reflexes, autonomic and neuro-humoral modulation (Rogers 2005). However, Shin *et al.* (2005) state another theory, in which the meridians are part of a third circulatory system formed by interstitial connective tissue, which links the surface of the body with the internal organs and cells throughout the body.

Connective tissue consists largely of crystal collagen fibres. Therefore, it may conduct electricity and create piezo-electrical effects that alter the electrical characteristics of the system. The liquid that flows through the sub ducts contains 1-2 μ m sized DNA containing granules that correlates with therapeutic effects to damaged internal organs.

The study by Shin *et al.* (2005) notes the similarities between the granules in the Jingluo subsystems and microcells used to study cancer and Down's syndrome. The granules and microcells are similar in size and shape, and have intensively stained nuclei, both having a thin outer membrane and one chromosome amount of DNA inside. The internal organs generate the granules found in the sub ducts by a natural *in vivo* process and pass through the network of ducts, whereas a chemical substance is used to generate the microcells *in vitro*.

Shin *et al.* (2005) also noted different threadlike structures in different animal subjects. It is unclear whether this is because of human error in detecting the structures, or because of developmental irregularities in the animals tested. If these differences relate to differences in response to acupuncture, it may explain why acupuncture is effective in some subjects and not in others. Research is needed to examine this further.

This research is still in its early stages. At this time, it is not detailed enough to confirm that the course of the thread-like ducts on the surface of the body corresponds exactly with the course of the meridians, as described in classical and modern acupuncture texts. Therefore, we must await confirmation from future research that the complete Jingluo system, including subsystems as well as the actual acupoints, can be isolated and identified. Identification of the substance

-like granules that run through the sub ducts will be equally interesting.

Surfaces of Mammalian Organs', The Anatomical Record, 284B, p35-40.

Acknowledgments

I thank Phil Rogers M.R.C.V.S., for bringing this research to my attention and for editing this article. I also thank Gabriele Saudelli M.D., Eunkyung Kim B.A. B.Sc. (Hons) T.C.M. and Mike Bowser L.Ac., for their comments and suggestions.

Biography

Attilio D'Alberto graduated from a program jointly run at Middlesex and Beijing Universities with a BSc (Hons) in Traditional Chinese Medicine (Middlesex University) and a MD (Beijing University). He currently practices in various busy clinics in London. Correspondence: www.attiliodalberto.com/contact.htm

References

Cho, S., Kim, B. & Park, Y. (2004). 'Threadlike structures in the aorta and coronary artery of swine', J Int Soc Life Info Sci, 22, p609-611

D'Alberto, A. Thermal Imagery Using Moxibustion Shows the Existence of the Jinglou [online]. (2005). Available from <http://www.acupuncturetoday.com/online/dalbertojinglou.html> [Accessed 14th June 2005].

Giovanardi, C., Lonardo, E. & Abbati, A. (1992). 'Studio Della Diffusione Del Tc99m Iniettato In Un Punto Di Agopuntura Ed In Un Punto Fuori Meridiano', Rivista Italiana di Agopuntura, XIII, 73.

Jiang, X., Lee, C., Choi, C., Baik, K., Soh, K., Kim, H., Shin, H., Soh, K. & Cheun, B. (2004). 'Threadlike bundle of tubules running inside blood vessels: New anatomical structure', Unpublished.

Lee, B., Baik, K., Johng, H., Nam, T., Lee, J., Sung, B., Choi, C., Park, W., Park, E., Yoon, Y. & Soh, K. (2004a). 'Acridine orange staining method to reveal the characteristic features of an intravascular threadlike structure', The Anatomical Record, 278B, p27-30.

Lee, B., Park, E. & Nam, T. (2004b). 'Bonghan ducts on the surface of rat internal organs', J Int Soc Life Info Sci, 22, p455-459.

Rogers, P. (philrogers@eircom.net). (17th June 2005). Bonghan Kim study. Email to A D'Alberto (www.attiliodalberto.com/contact.htm).

Shin, H., Johng, H., Lee, B., Cho, S., Soh, K., Baik, K., Yoo, J. & Soh, K. (2005). 'Feulgen Reaction Study of Novel Threadlike Structures (Bonghan Ducts) on the