

# Chang Gung Medical Journal

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### REVIEW ARTICLES

- 96 **Molecular Cytogenetics: An Indispensable Tool for Cancer Diagnosis**  
Thomas S. K. Wan, PhD; Edmond S. K. Ma, MD  
Cytogenetic aberrations may escape detection or recognition by traditional karyotyping. The clinical impact of fluorescence *in-situ* hybridization (FISH) is pivotal especially in the diagnosis, prognosis and treatment decisions for hematological diseases, all of which facilitate the practice of personalized medicine. This review summarizes the methodology and current utilization of these FISH techniques in unraveling chromosomal changes and highlights how the field is moving away from conventional methods towards molecular cytogenetics approaches. In addition, the potential of the more recently developed FISH tests in contributing information to genetic abnormalities is illustrated.
- 111 **Host Factors in the Replication of Positive-Strand RNA Viruses**  
Robert YL Wang, PhD; Kui Li, PhD  
Viruses are obligate, intracellular parasites that depend on host cells for successful propagation. Upon infection of host cells, positive-strand RNA viruses exploit and hijack cellular machinery and reprogram these cells into viral "factories" through various protein-protein, protein-RNA, and protein-lipid interactions. The molecular interplay between host factors and invading viruses is a continuous process throughout the entire viral life cycle and determines virus host range and viral pathogenesis, as well as driving viral evolution. Studies of host factors have contributed insights into their normal cellular functions and helped identify attractive targets for antiviral drug development. With the development of high throughput screening, functional genomics, and proteomics technologies, host factors participating in viral life cycles have been identified rapidly in recent years. In this review, we summarize the recent advances in virus-host cell interactions in positive-strand RNA virus infections and focus on host factors that facilitate viral replication.
- 125 **Ultrasound Microbubble Contrast Agents for Diagnostic and Therapeutic Applications: Current Status and Future Design**  
Shih-Tsung Kang, PhD; Chih-Kuang Yeh, PhD  
In this article, we review current developments in microbubble technology, and efforts by our laboratory in emerging diagnostic and therapeutic applications of microbubbles. Microbubbles were originally designed as ultrasound contrast agents to improve the sensitivity of conventional ultrasound imaging. The uniqueness of microbubbles, including bioconjugation, drug encapsulation, cavitation, and nonlinear emission, allow them to be used simultaneously as diagnostic and therapeutic agents. Applications include microbubble-specific imaging, ultrasound-aided drug delivery, and targeted imaging and therapy. These are promising but require further improvement for clinical use.

### ORIGINAL ARTICLES

- 140 **Extract of Sporoderm-Broken Germinating Spores of *Ganoderma lucidum* Activates Human Polymorphonuclear Neutrophils via the P38 Mitogen-activated Protein Kinase Pathway**  
Pei-Yu Hsu, MD; Jiun-Liang Chen, MD; Hsing-Yu Chen, MD; Sien-Hung Yang, MD, PhD  
*Ganoderma lucidum* (*G. lucidum*) has been used in traditional Chinese medicine for a long time to modulate human immunity, but the actual mechanism remains unknown. This study proved an enhanced phagocytic activity of human polymorphonuclear neutrophils (PMNs) by the extract of sporoderm-broken germinating spores of *G. lucidum* in a dose-dependent manner, but this response was attenuated by treatment with p38 mitogen-

activated protein kinase (p38 MAPK) inhibitor. The extract of *G. lucidum* also enhanced activation of p38 MAPK in a dose-dependent manner. These results demonstrated that *G. lucidum* can modulate human immunity by activating human PMNs via the p38 MAPK pathway.

**148 Etiological Analyses of Marked Neonatal Hyperbilirubinemia in A Single Institution in Taiwan**

Shao-Wen Cheng, MD; Ya-Wen Chiu, PhD; Yi-Hao Weng, MD

The current study analyzed the etiologies of severe neonatal hyperbilirubinemia (NH). A retrospective cohort of neonates with total serum bilirubin (TSB)  $\geq 20$  mg/dL was surveyed from 1995 to 2007. The most common etiology in relation to NH was breast milk feeding (38.5%). Neonates with more than one etiology tended to have higher TSB than subjects without a known etiology ( $p < 0.05$ ). In conclusion, this study depicts the clinical features of marked NH, especially NH caused by uncommon etiologies.

**155 Anthropometric Study of the Bicipital Groove in Indians and Its Clinical Implications**

B. V. Murlimanju, MD; Latha V. Prabhu, MS; Mangala M. Pai, MD; M. Shreya, MSc; K. U. Prashanth, MBBS; Chettiar Ganesh Kumar, MD; Chitra Prakash Rao, MS

We determined the length, width and depth of the bicipital groove and the incidence of a supratubercular ridge of Meyer in 104 unpaired dry humeri from an Indian population. The mean length, width and depth of the bicipital groove were  $84.6 \pm 10.9$  mm,  $8.5 \pm 2.3$  mm and  $4.4 \pm 1.8$  mm, respectively. A supratubercular ridge of Meyer was seen in 24 (23.1%) of the humeri. We believe that this study will be an important reference for scientific research, and the details are also important for anthropologists and clinical anatomists.

**160 Pierce and Push: A Simplified Method to Facilitate Laparoscopic Myomectomy**

Pei-Ju Wu, MD; Kai-Yun Wu, MD; Chien-Min Han, MD; Hsuan Su, MD; Chin-Jung Wang, MD; Chyi-Long Lee, MD, PhD

Few published studies discuss the method of excising fibroids in a laparoscopic myomectomy. The purpose of our study was to describe our experience with a novel approach called the pierce and push method, which uses a stainless steel manipulating probe instead of a claw forceps and myoma screws for easy and effective traction to enucleate fibroids from the surrounding myometrium.

**167 Eccrine Angiomatous Hamartoma: A Retrospective Study of 15 Cases**

Yi-Ting Lin, MD; Chien-Ming Chen, MD; Chih-Hsun Yang, MD; Yea-Huey Chuang, MD

Eccrine angiomatous hamartoma (EAH) is rare and histologically shows features of components of both proliferative eccrine and vascular elements. Previous studies have reported they generally arise before puberty, and are solitary or multiple lesions, with a heterogeneous clinical appearance, affecting predominantly the distal extremities, with or without associated pain or hyperhidrosis. However, no large case series has been published. We reviewed fifteen cases of EAH confirmed histopathologically, and found a high prevalence of lesional pain and an increased rate of recurrence after surgical excision, and additional histopathological findings compared with previous reports in the literature. EAH remains a benign and uncommon hamartomatous condition generally requiring no treatment, except for aesthetic reasons or in occasional cases with undesirable symptoms. In such cases, simple excision is effective.

**178 Surgical Resection of Centrally Located Large Hepatocellular Carcinoma**

Chih-Hsien Cheng, MD; Ming-Chin Yu, MD; Tsung-Han Wu, MD; Chen-Fang Lee, MD; Kun-Ming Chan, MD; Hong-Shiue Chou, MD; Wei-Chen Lee, MD

Surgical resection remains the mainstay treatment for centrally located large hepatocellular carcinoma. One hundred and four patients with centrally located large tumors were retrospectively reviewed. Hemi-/extended hepatectomy and central hepatectomy had comparable complication rates and long-term survival rates. Cirrhosis, the aspartate aminotransferase level and resected liver weight were independent factors determining long-term survival.

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