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Identification of novel tumor suppressor through methods of reverse genetics

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Identifying novel tumor suppressor holds the promise for improving cancer treatment. Forward genetic screening has been the primary method for identifying tumor suppressors and oncogenes. While, the potential of reverse genetics in deciphering genes critical for tumorigenesis has been widely expected, the application of the approaches has reminded limited. By exploring the molecular mechanisms underlying dorsoventral axis formation during early vertebrate embryogenesis, we identified the human homeobox protein VentX as a novel tumor suppressor. We demonstrated that VentX exerts its function through mechanisms of anti-proliferation and pro-differentiation. Importantly, we found

that VentX expression can be induced by chemotherapeutic agents and caused apoptosis of cancer cells in p53-independent manner. Taken together, our study revealed the application of reverse genetics in identifying novel tumor suppressors, and the role of VentX as a novel therapeutic target in cancer treatment.

Speaker Biography

Zhenglun Zhu is an expert in Fundamental Biology and Translational Medicine. He is an elected member of the prestigious American Society of Clinical Investigation (ASCI). Dr. Zhu discovered novel principle governing cell fate determination during early embryogenesis and translated the principle into identifying novel tumor suppressor.

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