Docket #: S13-059

Treatment and Screen for Synovial Sarcoma

Researchers in Prof. Gerald Crabtree's laboratory have identified the pathological mechanism for synovial sarcoma (SS) that could be used to develop targeted therapeutics. This approach aims to reverse the effects of the SS18-SSX fusion protein (the hallmark of human SS). The inventors discovered that SS18-SSX causes cell proliferation through a chain of events that induces Sox2 expression (see figure below in Media). Because this mechanism of transformation depends on only a small portion of the fusion protein, that region provides a viable foundation for therapeutic intervention. New compounds that treat synovial sarcoma could fulfill an unmet medical need because SS tumors that cannot be removed with surgery are nearly always lethal.

Stage of Research
The inventors have used their screen to identify several small molecules as potential therapeutic compounds and performed structure-activity relationship studies on those molecules.

Applications

- **Treatment of synovial sarcoma** - drug development target and high throughput screen designed to identify compounds that could reverse pathogenic mechanism of oncogenesis

Advantages

- **Unmet medical need** - patients with synovial sarcoma are generally not responsive to chemotherapy and tumors that cannot be removed with surgery are nearly always lethal

Publications

- Methods, compositions and screens for therapeutics for the treatment of synovial sarcoma (U.S. Patent Application Publication No. 20140288162)
- Kadoch, C., & Crabtree, G. R. (2013). Reversible disruption of mSWI/SNF (BAF) complexes by the SS18-SSX oncogenic fusion in synovial sarcoma. *Cell*, 153(1), 71-85.

Patents

- Published Application: 20140288162
- Published Application: 20170014491
- Published Application: 20190269761
- Issued: 9,410,943 (USA)
- Issued: 10,105,420 (USA)

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