

Scientists issue report in *Cell* on advances in basal cell carcinoma

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An article in the journal *Cell* by top scientists from the Translational Genomics Research Institute (TGen) and Mayo Clinic in Arizona details how two relatively new drugs are helping patients with basal cell carcinoma.

Basal cell carcinoma is the most common type of skin cancer, producing nearly 2.8 million new cases annually in the U.S., and sunny Arizona has one of the world's highest incidences of skin cancer.

The anti-cancer drugs Vismodegib and Sonidegib both inhibit a protein called Smoothed (SMO), part of the Hedgehog cellular pathway, which transmits molecular signals from a cell's exterior to its interior.

Uninhibited SMO signals other proteins along the Hedgehog pathway, leading to activation of cancer, according to the article published Feb. 25 in the scientific journal *Cell*.

The journal specifically requested the report by Drs. Daniel Von Hoff and Aleksandar Sekulic.

Dr. Von Hoff is Distinguished Professor and Physician in Chief at TGen, as well as Chief Scientific Officer for the clinical trials partnership between TGen and HonorHealth in Scottsdale, and a Professor of Clinical Medicine at Mayo Clinic.

Dr. Aleksandar Sekulic Associate Professor of Dermatology at Mayo

Clinic and Vice Chair of the Department of dermatology, as well as Associate Director for the Center For Individualized Medicine at Mayo Clinic in Arizona.

The FDA approved Vismodegib in 2012 as a first-line therapy for [basal cell carcinoma](#), following a TGen-led phase I clinical trial at HonorHealth, and at a Mayo Clinic-led phase II clinical trial. It was the first drug tested under the TGen-HonorHealth partnership to receive FDA approval, and the first to receive FDA approval to treat inoperable basal cell carcinoma.

Dr. Von Hoff's initial findings of the effectiveness of Vismodegib in addressing gene mutations along the Hedgehog pathway was documented in a study published in 2009 in the prestigious *New England Journal of Medicine*.

Dr. Sekulic, a physician and scientist with a joint appointment at Mayo Clinic and TGen, led the subsequent phase pivotal clinical trials of Vismodegib at Mayo Clinic leading to the FDA approval in 2012. Dr. Sekulic's study, documented in a second article in *The New England Journal of Medicine* in 2012, found that Vismodegib (marketed as Erivedge) shrank advanced basal cell carcinoma tumors in 43 percent of patients with locally advanced disease and in 30 percent of patients whose disease spread to other organs (metastatic).

The response rate for the second SMO inhibitor Sonidegib (marketed as Odomzo), approved by the FDA in 2015, was a comparable 44 percent in patients with locally advanced disease. It is not approved for metastatic cancer.

Provided by The Translational Genomics Research Institute

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