**Epizyme and Celgene partner to advance human health through epigenetic-based therapies**

**BY LLOYD DUNLAP**

CAMBRIDGE, Mass.—Epizyme and Celgene International Sarl, a subsidiary of Celgene Corp., have entered into a strategic partnership to discover, develop and commercialize personalized therapeutics for patients with genetically-defined cancers by inhibiting histone methyltransferases (HMTs), an important epigenetic target class with 96 known members. Epizyme has developed targets for 20 HMTs to date, states Jason Rhodes, the company’s executive vice president and chief business officer.

Celgene is its third partnership agreement, Rhodes notes, with GlaxoSmithKline PLC and Eisai preceding Celgene.

Under the terms of the deal, Celgene receives the exclusive option to license to ex-U.S. rights to Epizyme’s available HMT inhibitor programs during a three-year period and can extend the option for one year. Epizyme retains all U.S. rights to the collaboration programs and receives a $90 million upfront payment, which includes an equity investment. For each HMT inhibitor that Celgene licenses, Epizyme is eligible to earn more than $160 million in milestone payments and up to double-digit royalties on ex-U.S. sales. Epizyme and Celgene will work jointly to discover and develop HMT inhibitors and will co-fund global development of the collaboration programs. The collaboration includes Epizyme’s DOT1L HMT inhibitor program, to which Celgene licenses the ex-U.S. rights at signing. DOT1L is an oncogenic driver gene that is discovered and developed, Yale will be entitled to use this technology for multiple disease-causing proteins across all therapy areas. For each protein-degrading drug that is discovered and developed, Yale will be eligible for milestone and royalty payments. Several collaborations between GSK and U.K.-based universities have been announced recently that also involve jointly working toward common milestones and include an element of risk-sharing by both parties.

This partnership, however, differs both because of its scope around a potential new class of medicines and because it is the first such collaboration between GSK and a U.S.-based academic center.

With consolidation in the industry, internal research has been hurt at many companies, and so is the focus potential for academic outreach and collaborations with academia," Crews notes. “The Yale Center for Molecular Discovery is where Yale’s basic science expertise diagnostic test already exists. Epizyme expects to have human data on the DOT1L program, as well as its EZH2 target for non-Hodgkin’s lymphoma (in collaboration with Eisai), in 12 to 16 months. Celgene was eager to have human proof of concept early on and the DOT1L program, which is Epizyme’s most advanced, fit the bill.

Four-year-old Epizyme’s strategy is to build a new biopharma based on personalized therapeutics for patients with genetically defined cancers. According to Bob Copeland, Epizyme’s chief scientific officer, the Celgene partnership is transnational, enabling Epizyme to expand its R&D efforts while retaining U.S. rights where the company plans to commercialize drug candidates independently.

“There were several things about Celgene that were attractive to us,” he says. “Notably, their strong commitment to oncology, personalized medicine and epigenetics. When our CEO Bob Gould visited them, a one-hour presentation became three and a half. We took that as a very good sign.”

Also, Rhodes notes, “Our two companies have complementary skill sets; ours in discovery and development, and Celgene’s in later stages. With this agreement, we gained all the benefits of partnership while retaining U.S. rights and our independence, as well as tremendous access to capital. Through this collaboration, Epizyme gains access to Celgene’s leading drug development resources, enabling us to substantially increase the breadth and depth of our efforts, while retaining U.S. rights to our pipeline of personalized therapeutics.”

“Celgene is a leader in epigenetic therapies for cancer for our existing drugs, and continues to focus on delivering new drugs with high therapeutic impact in this area,” says Dr Thomas Daniel, president of research at Celgene. “Epizyme’s platform, scientific leadership in histone methyltransferases and leading position on promising HMT targets offer an exciting complement to our portfolio. Our collaboration with Epizyme is a key element of our strategy to develop new and innovative therapeutic paradigms.”

Copeland notes that Epizyme’s HMT inhibitor platform is extremely robust and that after DOT1L and EZH2, the other 94 members of the class will follow in its efforts to discover and develop small-molecule HMT inhibitors. Genetic alterations in HMTs are strongly associated with the underlying causes of multiple human diseases, including cancer. Epizyme’s patient-driven approach represents the future of personalized therapeutics by creating better medicines for the right patients more quickly and at lower cost than traditional approaches, he states. ddn