

News Release

March 16, 2020

Carna Biosciences, Inc.

Carna Biosciences Announces License Agreement with BioNova Pharmaceuticals to Develop and Commercialize AS-1763 in Greater China

Carna Biosciences Inc. (NASDAQ: 4572), a biopharmaceutical company focusing on the discovery and development of innovative small molecule drugs, today announced that it has entered into a license agreement with BioNova Pharmaceuticals Limited, a China-based biopharmaceutical company focused on the development and commercialization of innovative medicines for the treatment of diseases with high unmet medical needs, to develop and commercialize AS-1763, a novel next-generation non-covalent Bruton's tyrosine kinase (BTK) inhibitor for the Greater China territory.

"BioNova is the ideal partner for Carna to accelerate the development of our next generation BTK inhibitor for blood cancers, considering the competitive environment in the US for patient recruitment," said Masaaki Sawa, Ph.D., Chief Scientific Officer and Head of Research and Development at Carna Biosciences. "We look forward to working together with BioNova to advance AS-1763 forward as quickly as possible."

"This partnership with BioNova gives us more opportunities to maximize the potential of AS-1763 in cancer treatment. We look forward to collaborating with the BioNova team to deliver our innovative drug to patients with cancer," said Kohichiro Yoshino, Ph.D., President and Chief Executive Officer at Carna Biosciences.

"With the recent success of BTK inhibitors becoming standard of care for certain B-cell malignancies, there are emerging acquired resistances, and most commonly C481S mutation in particular, resulted from the treatment of first-generation covalent BTK inhibitors," said Ye Hua, MD, MPH, Founder and CEO of BioNova. "The collaboration with Carna offers us the opportunity to investigate a potential solution for this high unmet medical need with a target therapy that is tailored to overcome drug resistance."

Under the terms of the license agreement, Carna has granted to BioNova an exclusive license to develop and commercialize AS-1763 in Greater China. Carna retains worldwide rights excluding Greater China to develop and commercialize AS-1763. In connection with this agreement, Carna will receive an upfront payment and potential milestone payments up to \$205 million upon achievement of certain development and commercial milestones. Carna will also receive tiered royalties up to double digits on net sales in Greater China.

About Carna Biosciences

Carna Biosciences is a biopharmaceutical company focused on the discovery and development of kinase inhibitor drugs to treat serious unmet medical needs in oncology, autoimmune and neurological diseases by inhibiting kinases that are important drivers for those diseases. Carna Biosciences was founded in Kobe, Japan, in 2003 as a spinoff of Japan Organon (Nippon Organon KK). Carna's initial focus was to develop an extensive number of state-of-the-art, highest quality reagents for kinase drug discovery, and has since established a leading drug discovery program with a significant collection of proprietary chemical libraries. For more information, please visit www.carnabio.com.

About BioNova Pharmaceuticals

BioNova Pharmaceuticals Limited. is a biopharmaceutical company dedicated to the development and commercialization of innovative medicines for the treatment of diseases with high unmet medical needs. BioNova focuses on building a robust pipeline through internal R&D programs, collaborations with global partners, and selective license and acquisitions. With a highly capable research and development team, efficient operating model, and substantial funding, BioNova is committed to delivering high quality innovative medicines to the patients in China and globally. For more information, please visit www.bionovapharma.com.

About AS-1763

AS-1763 is a highly selective, orally bioavailable, non-covalent inhibitor of both the wild type and C481S mutant Bruton's tyrosine kinases (BTK) for the treatment of chronic lymphoma (CLL) and other B-cell malignancies. First generation covalent BTK inhibitors including ibrutinib are treatment paradigm change for patients with CLL and B-cell malignancies. However, patients are reported to develop resistance during the treatment due to substitution of cysteine residue at 481 position with serine (C481S mutation) in BTK, which prevents the covalent binding of the first generation irreversible BTK inhibitors. In *in vitro* experiments, AS-1763 significantly abrogates cell proliferation in both wild type and C481S mutant BTK lymphoma cells, strongly suggesting AS-1763 will be a new therapeutic option for patients with B-cell malignancies both having wild type and C481S mutation in BTK.

AS-1763 is being evaluated in non-clinical studies including genotoxicity, safety pharmacology and 28-day repeated dose toxicity study (GLP) to initiate phase 1 study.

Carna Contacts:

Corporate Planning
Carna Biosciences, Inc.
TEL: +81-78-302-7075
<https://www.carnabio.com/english/>