



Checkmate Pharmaceuticals Announces Strategic Collaboration with Merck KGaA, Darmstadt, Germany and Pfizer to Evaluate Combination Therapy with CMP-001 and Avelumab

Phase Ib/II trial will evaluate safety, pharmacokinetics, pharmacodynamics, efficacy of the immunotherapy combination in PD-1/PD-L1-Refractory Advanced Squamous Cell Cancer of the Head and Neck (SCCHN)

CAMBRIDGE, Mass., September 5, 2018 – Checkmate Pharmaceuticals (Checkmate), announced that it has entered into a clinical trial collaboration and supply agreement with the alliance between Merck KGaA, Darmstadt, Germany, and Pfizer to evaluate CMP-001, a TLR9 agonist, in combination with avelumab*, a human anti-PD-L1 antibody. The collaboration will evaluate the safety and effectiveness of CMP-001 administered in combination with avelumab in patients with advanced squamous cell cancer of the head and neck (SCCHN) resistant to a prior PD-1/PD-L1 inhibitor.

“This collaboration is an important next step in advancing our clinical development program for CMP-001 into indications beyond melanoma, where we already have demonstrated proof-of-concept,” said Art Krieg, CEO of Checkmate. “Merck KGaA, Darmstadt, Germany, and Pfizer are ideal partners for Checkmate given their commitment to developing avelumab broadly in the immuno-oncology field.”

“Early data suggest CMP-001 exhibits clinically encouraging activity and we are looking forward to investigating this compound in combination with avelumab in advanced head and neck cancer,” said Chris Boshoff, M.D., Ph.D., Senior Vice President and Head of Immuno-oncology, Early Development and Translational Oncology, Pfizer Global Product Development. “Our collaboration with Checkmate further demonstrates the alliance’s commitment to explore novel combinations with avelumab to potentially improve patient outcomes.”

“Combining avelumab with CMP-001 adds to our clinical development strategy of IO combinations in different hard-to-treat cancers,” said Alise Reicin, Head of Global Clinical Development at the Biopharma business of Merck KGaA, Darmstadt, Germany, which in the US and Canada operates as EMD Serono. “We look forward to working with Checkmate to explore how the combination of these agents can potentially advance care for these patients.”

Avelumab has received accelerated approval** by the US Food and Drug Administration (FDA) for the treatment of patients with metastatic Merkel cell carcinoma (MCC) and previously treated patients with locally advanced or metastatic urothelial carcinoma (mUC), and is under further clinical evaluation across a range of tumor types under a global strategic alliance between Merck KGaA, Darmstadt, Germany, and Pfizer.

**Avelumab is under clinical investigation for treatment of SCCHN in combination with CMP-001 and has not been demonstrated to be safe and effective for this use. There is no guarantee that avelumab will be approved for SCCHN by any health authority worldwide.*

About CMP-001

CMP-001 is a first-in-class CpG-A Toll-like receptor 9 (TLR9) agonist that is encapsulated in a virus-like particle (VLP). CMP-001 is designed to induce both innate and adaptive anti-tumor immune responses, thereby converting immunologically “cold” tumors into immunologically “hot” tumors, with the potential to mediate tumor regression. It is the only CpG-A class TLR9 agonist in clinical trials and differs from other CpG classes in clinical development by having a native DNA backbone that induces the highest levels of type I IFN. Based on analyses of gene expression in human tumors showing that increased IFN and related immune gene expression is associated with better response to PD-1 inhibition, it is believed that this mechanism of action may restore, enable or improve responses to anti-PD-1/PD-L1 therapeutics.

CMP-001 is being evaluated in multiple tumor types to assess its safety, activity, alternative routes of administration and combination with other immunotherapies and modalities. For information on CMP-001 trials that are currently recruiting patients, please visit www.clinicaltrials.gov.

About Avelumab

Avelumab is a human anti-programmed death ligand-1 (PD-L1) antibody. Avelumab has been shown in preclinical models to engage both the adaptive and innate immune functions. By blocking the interaction of PD-L1 with PD-1 receptors, avelumab has been shown to release the suppression of the T cell-mediated antitumor immune response in preclinical models.¹⁻³ Avelumab has also been shown to induce NK cell mediated direct tumor cell lysis via antibody-dependent cell-mediated cytotoxicity (ADCC) in vitro.³⁻⁵ In November 2014, Merck KGaA, Darmstadt, Germany, and Pfizer announced a strategic alliance to co-develop and co-commercialize avelumab.

Avelumab is currently being evaluated in the JAVELIN clinical development program, which involves at least 30 clinical programs, including seven Phase III trials, and more than 8,600 patients across more than 15 different tumor types. For a comprehensive list of all avelumab trials, please visit clinicaltrials.gov.

Approved Indications in the US**

The US Food and Drug Administration (FDA) granted accelerated approval for avelumab (BAVENCIO®) for the treatment of (i) adults and pediatric patients 12 years and older with metastatic Merkel cell carcinoma (mMCC) and (ii) patients with locally advanced or metastatic urothelial carcinoma (mUC) who have disease progression during or following platinum-containing chemotherapy, or have disease progression within 12 months of neoadjuvant or adjuvant treatment with platinum-containing chemotherapy. These indications are approved under accelerated approval based on tumor response rate and duration of response. Continued approval for these indications may be contingent upon verification and description of clinical benefit in confirmatory trials.

Important Safety Information from the US FDA Approved Label

The warnings and precautions for avelumab (BAVENCIO®) include immune-mediated adverse reactions (such as pneumonitis, hepatitis, colitis, endocrinopathies, nephritis and renal dysfunction and other adverse reactions), infusion-related reactions and embryo-fetal toxicity.

Common adverse reactions (reported in at least 20% of patients) in patients treated with BAVENCIO for mMCC and patients with locally advanced or metastatic UC include fatigue, musculoskeletal pain, diarrhea, nausea, infusion-related reaction, peripheral edema, decreased appetite/hypophagia, urinary tract infection and rash.

For full prescribing information and medication guide for BAVENCIO, please see www.BAVENCIO.com.

About Checkmate

Checkmate Pharmaceuticals is a clinical stage company that is leveraging its expertise in the field of CpG oligonucleotides to discover and develop immunotherapies designed to increase the efficacy of existing immunotherapies and to provide new treatment options for patients and their healthcare providers. Checkmate's lead product candidate, CMP-001, is an investigational cancer immunotherapeutic that has been shown to reverse resistance to PD-1 therapy in some patients.

Checkmate is a privately held company headquartered in Cambridge, MA.

Information regarding Checkmate is available at www.checkmatepharma.com.

###

CONTACTS:

Company Contact:

Checkmate Pharmaceuticals, Inc.
Art Krieg, MD, CEO
akrieg@checkmatepharma.com

Media Contact:

MacDougall Biomedical Communications
Karen Sharma
781-235-3060
ksharma@macbiocom.com

References

1. Dolan DE, Gupta S. PD-1 pathway inhibitors: changing the landscape of cancer immunotherapy. *Cancer Control*. 2014;21(3):231-237.
2. Dahan R, Sega E, Engelhardt J, Selby M, Korman AJ, Ravetch JV. FcγRs modulate the anti-tumor activity of antibodies targeting the PD-1/PD-L1 axis. *Cancer Cell*. 2015;28(3):285-295.
3. Boyerinas B, Jochems C, Fantini M, et al. Antibody-dependent cellular cytotoxicity activity of a novel anti-PD-L1 antibody avelumab (MSB0010718C) on human tumor cells. *Cancer Immunol Res*. 2015;3(10):1148-1157.
4. Kohrt HE, Houot R, Marabelle A, et al. Combination strategies to enhance antitumor ADCC. *Immunotherapy*. 2012;4(5):511-527.
5. Hamilton G, Rath B. Avelumab: combining immune checkpoint inhibition and antibody-dependent cytotoxicity. *Expert Opin Biol Ther*. 2017;17(4):515-523.