September 29, 2020

Moleculin Announces Discovery of Significant In Vitro Activity Against COVID-19 Virus for New Antimetabolites

Increases antiviral drug candidates to three

HOUSTON, Sept. 29, 2020 /PRNewswire/ -- Moleculin Biotech, Inc., (Nasdaq: MBRX) (Moleculin or the Company), a clinical stage pharmaceutical company with a broad portfolio of drug candidates targeting significant unmet needs in the treatment of tumors and viruses, announced that its research team has discovered that a molecule within its portfolio of antimetabolites has displayed significant in vitro antiviral activity against SARS-CoV-2. Independent laboratory testing of the new drug candidate, called "WP1096," has now repeatedly demonstrated a therapeutic index of greater than 10, which is considered by our team to be an industry-standard commercialization threshold for in vitro performance of antiviral drugs.

Walter Klemp, Chairman and CEO of Moleculin, stated, "While we continue to see encouraging progress with WP1122 in preparation for clinical trials for the potential treatment of COVID-19, we have also continued our antiviral drug discovery program to expand the range of potential therapies. Our efforts led to a new discovery that we believe can be a game-changer. WP1096 and its close analog, WP1097, are structurally slightly different agents within the WP1122 portfolio. However, small structural changes unexpectedly resulted in high levels of antiviral activity and potentially a unique mode of action. The in vitro performance is significant enough that we simply must now consider proceeding with the necessary preclinical support for these additional molecules for antiviral clinical trials in addition to the lead molecule, WP1122."

Mr. Klemp continued, "The in vitro therapeutic index of WP1096 against SARS-CoV-2 appears to meet the level needed to support preclinical studies aimed to fully assess the commercial potential of WP1096. That alone is compelling data, but the unexpected performance of both WP1096 and WP1097 may be the result of mechanistic differences from the rest of our antimetabolite portfolio, which has pushed us to evaluate their potential in other viruses and related diseases like HIV, Zika, Dengue Fever and others."

Mr. Klemp concluded, "This was an unexpected discovery and one that really demands an

adaptive change in development strategy on our part. While we continue our preclinical development work on WP1122, including in vivo testing for SARS-CoV-2, we are now expanding our program by adding these two new molecules as well. We anticipate it will take at least twelve months of development work to assess clinical potential for these new molecules and file an Investigational New Drug (IND) application to the US Food and Drug Administration. In the meantime, we expect to be communicating more in vitro test results for activity in additional viruses in the near future."

About Moleculin Biotech, Inc.

Moleculin Biotech, Inc. is a clinical stage pharmaceutical company focused on the development of a broad portfolio of oncology drug candidates for the treatment of highly resistant tumors and viruses. The Company's clinical stage drugs are: Annamycin, a Next Generation Anthracycline, designed to avoid multidrug resistance mechanisms with little to no cardiotoxicity being studied for the treatment of relapsed or refractory acute myeloid leukemia, more commonly referred to as AML, WP1066, an Immune/Transcription Modulator capable of inhibiting p-STAT3 and other oncogenic transcription factors while also stimulating a natural immune response, targeting brain tumors, pancreatic cancer and hematologic malignancies, and WP1220, an analog to WP1066, for the topical treatment of cutaneous T-cell lymphoma. Moleculin is also engaged in preclinical development of additional drug candidates, including other Immune/Transcription Modulators, as well as WP1122 and related compounds capable of Metabolism/Glycosylation Inhibition.

For more information about the Company, please visithttp://www.moleculin.com.

Forward-Looking Statements

Some of the statements in this release are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, Section 21E of the Securities Exchange Act of 1934 and the Private Securities Litigation Reform Act of 1995, which involve risks and uncertainties. Forward-looking statements in this press release include, without limitation, the ability of the Company's antimetabolites to be shown safe and effective for infectious diseases and to submit within twelve months an Investigational New Drug application to the US Food and Drug Administration. Although Moleculin believes that the expectations reflected in such forward-looking statements are reasonable as of the date made, expectations may prove to have been materially different from the results expressed or implied by such forward-looking statements. Moleculin Biotech has attempted to identify forward-looking statements by terminology including "believes," "estimates," "anticipates," "expects," "plans," "projects," "intends," "potential," "may," "could," "might," "will," "should," "approximately" or other words that convey uncertainty of future events or outcomes to identify these forward-looking statements. These statements are only predictions and involve known and unknown risks, uncertainties, and other factors, including those discussed under Item 1A. "Risk Factors" in our most recently filed Form 10-K filed with the Securities and Exchange Commission ("SEC") and updated from time to time in our Form 10-Q filings and in our other public filings with the SEC. Any forward-looking statements contained in this release speak only as of its date. We undertake no obligation to update any forward-looking statements contained in this release to reflect events or circumstances occurring after its date or to reflect the occurrence of unanticipated events.

Contacts

James Salierno / Carol Ruth
The Ruth Group
973-255-8361 / 917-859-0214
jsalierno@theruthgroup.com
cruth@theruthgroup.com

View original content to download multimedia:http://www.prnewswire.com/news-releases/moleculin-announces-discovery-of-significant-in-vitro-activity-against-covid-19-virus-for-new-antimetabolites-301139682.html

SOURCE Moleculin Biotech, Inc.