Panbela Announces Poster Presentation at American Association for Cancer Research:
The potential of spermine analogue SBP-101 (diethyl dihydroxyhomospermine) as a polyamine metabolism modulator in ovarian cancer

MINNEAPOLIS (GLOBE NEWSWIRE) April 12, 2022 -- Panbela Therapeutics, Inc. (Nasdaq: PBLA), a clinical stage biopharmaceutical company developing disruptive therapeutics for the treatment of patients with cancer announces a poster presentation highlighting the results for SBP-101 as a polyamine metabolism modulator in ovarian cancer at the American Association for Cancer Research (AACR), taking place April 8-13, 2022. The work reflects the Company's ongoing collaboration with Johns Hopkins University School of Medicine.

"The treatment of C57Bl/6 mice injected with VDID8+ ovarian cancer with SBP-101 was observed to significantly prolong survival and decrease overall tumor burden," said Jennifer K. Simpson, PhD, MSN, CRNP, President & Chief Executive Officer of Panbela. "We are grateful to our collaborators at Johns Hopkins University School of Medicine, who are on the leading edge of cancer research. This data supports our efforts to initiate an ovarian cancer program this year. Additionally, we are excited to review these results on an R&D call planned for May 3, 9:00 AM EST."

"The results suggest that SBP-101 may have a role in the clinical management of ovarian cancer," said Dr. Simpson, "We look forward to continuing our studies in ovarian, and other cancers, to develop effective therapeutics for patients with unmet medical needs."

The poster highlights the role of naturally occurring polyamines, putrescine, spermidine and spermine, as essential for cellular growth and proliferation. As such, many cancers are reliant on elevated polyamine levels that are maintained through dysregulated polyamine metabolism. Polyamine metabolism is thus a promising target for cancer therapeutics, and modulation of polyamine metabolism has been attempted with numerous enzyme inhibitors and polyamine analogues. SBP-101 (diethyl dihydroxyhomospermine) is a novel spermine analogue that has shown efficacy in slowing pancreatic tumor progression both *in vitro* and *in vivo*.

This study determined the effect of SBP-101 treatment on polyamine metabolism in a variety of cancer cell types *in vitro* including lung, ovarian, prostate, pancreatic and breast. In addition, the activity of four enzymes involved in the polyamine pathway following treatment with either SBP-101 or the well-characterized spermine analogue, BENSpm (N^1,N^{11}-bisethylnorspermine) was evaluated. These results indicate that SBP-101 likely exerts its effects predominately

through decreased polyamine biosynthesis with minor upregulation of catabolism, in contrast to the structurally similar BENSpm where the increase in polyamine catabolism is the predominant response.

The efficacy of SBP-101 utilizing the VDID8$^+$ murine ovarian cancer model (ID8$^+$ C57Bl/6 ovarian cells overexpressing both VEGF and Defensin) was evaluated. The mice were treated with SBP-101 at either 24 mg/kg or 6 mg/kg alternating MWF. Both doses of SBP-101 produced a statistically significant prolongation of survival (24mg/kg p=.0049, 6 mg/kg p=.0042). There was no significant difference in response between the two SBP-101 doses. The prolonged survival was correlated with a delay in the production of ascites, the indication of tumor burden in this model. Additionally, when SBP-101 treated mice succumbed to the disease, their overall tumor burden was lower when compared to control mice.

The poster concludes that the treatment of C57Bl/6 mice injected with VDID8$^+$ ovarian cancer with SBP-101 significantly prolonged survival and decreased overall tumor burden. Future studies will be designed to evaluate the effects of SBP-101 in combination with other polyamine metabolism modulators as well as with immune modulators.

Details of the presentation are as follows:

Poster Presentation

Title: The potential of spermine analogue SBP-101 (diethyl dihydroxyhomospermine) as a polyamine metabolism modulator in ovarian cancer
Session Category: Experimental and Molecular Therapeutics
Session Title: Small Molecule Therapeutic Agents Abstract #: 5488

Additional meeting information can be found on the AACR website: **Abstracts | AACR Annual Meeting 2022 | April 8-13, 2022 | New Orleans**

The poster will also be available on the Company's website at **https://panbela.com/events-presentations/ .**

About SBP-101

SBP-101 is a proprietary polyamine analogue designed to induce polyamine metabolic inhibition (PMI) by exploiting an observed high affinity of the compound for pancreatic ductal adenocarcinoma and other tumors. The molecule has shown signals of tumor growth inhibition in clinical studies of US and Australian metastatic pancreatic cancer patients, demonstrating a median overall survival (OS) of 12.0 months which is not yet final, and an objective response rate (ORR) of 48%, both exceeding what is seen typically with the standard of care of gemcitabine + nab-paclitaxel suggesting potential complementary activity with the existing

FDA-approved standard chemotherapy regimen. In data evaluated from clinical studies to date, SBP-101 has not shown exacerbation of bone marrow suppression and peripheral neuropathy, which can be chemotherapy-related adverse events. Serious visual adverse events have been evaluated and patients with a history of retinopathy or at risk of retinal detachment will be excluded from future SBP-101 studies. The safety data and PMI profile observed in the current Panbela sponsored clinical trial provides support for continued evaluation of SBP-101 in a randomized clinical trial. For more information, please visit **https://clinicaltrials.gov/ct2/show/NCT03412799 .**

About Panbela

Panbela Therapeutics, Inc. is a clinical-stage biopharmaceutical company developing disruptive therapeutics for patients with urgent unmet medical needs. The company's initial product candidate, SBP-101, is for the treatment of patients with metastatic pancreatic ductal adenocarcinoma, the most common type of pancreatic cancer. Panbela Therapeutics, Inc. is dedicated to treating patients with pancreatic cancer, ovarian cancer, and exploring SBP-101's potential for efficacy in combination with other agents in other cancer indications. Further information can be found at **www.panbela.com.** Panbela Therapeutics, Inc. common stock is listed on The Nasdaq Stock Market LLC under the symbol PBLA.

Cautionary Statement Regarding Forward-Looking Statements

This press release contains "forward-looking statements," including within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements can be identified by words such as: "believe," "design," "expect," "feel," "intend," "may," "plan," "scheduled," and "will." Examples of forward-looking statements include statements we make regarding results of collaborations with third parties and future studies. All statements other than statements of historical fact are statements that should be deemed forward-looking statements. Forward-looking statements are neither historical facts nor assurances of future performance. Instead, they are based only on our current beliefs, expectations, and assumptions regarding the future of our business, future plans and strategies, projections, anticipated events and trends, the economy and other future conditions. Because forward-looking statements relate to the future, they are subject to inherent uncertainties, risks and changes in circumstances that are difficult to predict and many of which are outside of our control. Our actual results and financial condition may differ materially and adversely from the forward-looking statements. Therefore, you should not rely on any of these forward-looking statements. Important factors that could cause our actual results and financial condition to differ materially from those indicated in the forward-looking statements include, among others, the following: (i) our ability to obtain additional funding to complete clinical trials; (ii) progress and success of our Phase 1 clinical trial; (iii) the impact of the current COVID-19 pandemic on our ability to complete monitoring and reporting in our current clinical trial and procure the active

ingredient; (iv) our ability to demonstrate the safety and effectiveness of our SBP-101 product candidate (v) our ability to obtain regulatory approvals for our SBP-101 product candidate in the United States, the European Union or other international markets; (vi) the market acceptance and level of future sales of our SBP-101 product candidate; (vii) the cost and delays in product development that may result from changes in regulatory oversight applicable to our SBP-101 product candidate; (viii) the rate of progress in establishing reimbursement arrangements with third-party payors; (ix) the effect of competing technological and market developments; (x) the costs involved in filing and prosecuting patent applications and enforcing or defending patent claims; and (xi) such other factors as discussed in Part I, Item 1A under the caption "Risk Factors" in our most recent Annual Report on Form 10-K, any additional risks presented in our Quarterly Reports on Form 10-Q and our Current Reports on Form 8-K. Any forward-looking statement made by us in this press release is based on information currently available to us and speaks only as of the date on which it is made. We undertake no obligation to publicly update any forward-looking statement or reasons why actual results would differ from those anticipated in any such forward-looking statement, whether written or oral, whether as a result of new information, future developments or otherwise.

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