Houston, Texas, Jan. 04, 2021 /GlobalNewswire/ -- Kiromic Biopharma, Inc. (Nasdaq: KRBP), is a target discovery and gene-editing company utilizing artificial intelligence and our proprietary neural network platform with a therapeutic focus on immuno-oncology.

Kiromic today announces the filing of key European patents for our chimeric PD-1 (chPD1) target.

- Kiromic chPD1 receptor targets PD-1 ligands expressed on many different types of cancer cells, including ovarian, pancreatic, prostate, colon, kidney, and breast cancer and melanoma.
- Kiromic chPD1-expressing T cells engage with the PD-1 ligands on the surface of the cancer cells and this interaction activates the T cells to directly kill the tumor cells.
- Kiromic chPD1 has shown in preclinical data to show a cytotoxic response in 9 different in vivo models with 100% long-term PFS with the induction of host memory responses.
- chPD1 will be used in our proprietary chimeric antigen receptor therapy (CAR-T) platform using gamma-delta T-cells (GD-T)

Our deep understanding of the tumor micro environment (TME) and the tumors' escape and masking mechanisms led to our development of an extraordinarily promising platform for chimeric antigen receptor therapy (CAR-T).

Our allogenic CAR-T platform is significantly stronger with chPD1 target licensed from Longwood University.

Prof. Amorette Barber of Longwood University will be heading up our chPD1 program.

"Prof. Barber's work will give Kiromic a significant acceleration in the clinical development of our therapy platform and an even more significant advantage over our competitors. This collaboration marks the beginning of an exciting revolution in cell therapies," said **Gianluca Rotino, Chief of Strategy and Innovation Officer.**

"chPD1 is an exciting and differentiated target for our allogenic CAR-T solid tumors platform. We look forward to updating you in the months ahead as we move closer to filing our first IND with our chPD1 for ovarian cancer," said **Maurizio Chiriva-Internati, PhD, CEO of Kiromic Biopharma**.

List of Patents filed

"T-cells expressing a chimeric- PD1-CD3zeta receptor reduce tumor burden in multiple murine syngeneic models of solid cancer"

PCT/US2018/052799 (USA) | WO 2019/067504 (International)

About PD-1 Check-point inhibition

PD-1 has always been a challenge for CAR-T development. PD-1 is the brakes of the immune system, inhibiting immune cells from killing tumor cells.

Traditional PD1 inhibitors block the PD1 receptor, “removing the brakes” of T-cell activity. Conversely, Kiromic’s chPD1 not only “removes the brakes” but also engages the PD1 receptor to “accelerate” T-cell activity.

About Kiromic chPD1 Mechanism of Action

Kiromic’s chPD1 receptor targets PD-1 ligands expressed on many different types of cancer cells, including ovarian, pancreatic, prostate, colon, kidney, and breast cancer and melanoma.

ChPD1-expressing T cells engage with the PD-1 ligands on the surface of the cancer cells and this interaction activates the T cells to directly kill the tumor cells. ChPD-1 T cells also release cytokines to further initiate immune responses to eradicate the tumor cells.

Through expression of the chPD-1 receptor, the inhibitory signal the T cells would have received through engagement of the PD-1 ligands on tumor cells now acts as an activating signal and induces destruction of tumors. A large variety of cancer types express PD-1 ligands thus the chPD-1 T cells could potentially be used to treat many types of tumors.

About Dr. Amorette Barber (Longwood University)

Dr. Barber is an associate professor of biology and director of the Office of Student Research. Dr. Barber is in her tenth year at Longwood and serves as the President-Elect of the Virginia Academy of Science.

Dr. Barber is a tumor immunologist. She is an expert in chimeric antigen T cells. Her research focuses on determining the role costimulatory domains play in enhancing chimeric T cell activity and the creation and testing of the chPD1 receptor as a therapy for multiple types of cancer.

Dr. Barber has had 26 publications in cellular signaling in the following scientific journals: *The Journal of Clinical Investigation, Blood, Cancer Research, The Journal of Immunology*, and many others.

Link to her profile: http://www.longwood.edu/directory/profile/barberarlongwoodedu/

Dr. Barber also serves on Kiromic's Scientific Advisory Board.

About Longwood University

Longwood has a robust research department with 7 post doctorates conducting research in molecular biology, microbiology, genomics, cancer biology, and immunology and publishing over 75 publications in different scientific journals in the past 5 years.

LINK to Longwood University: www.longwood.edu

About Kiromic Biopharma

Revolutionizing Next-Gen Allogenic CAR Therapies for Solid Tumors.

We are a target discovery and gene-editing company utilizing artificial intelligence and our proprietary neural network platform with a therapeutic focus on immuno-oncology.

Our proprietary target discovery engine is called "Diamond."

Kiromic's Diamond is big data science meeting target identification, dramatically compressing man-years and billions of drug development dollars to develop a live drug.

Without Kiromic's Diamond, the management of all the data required to solve the Target Identification puzzle is both challenging and inefficient. Normal data required for target identification would require manual analysis of thousands of cancer tissue samples with billions of data points, looking at millions of mutations, and poring over thousands of publications on oncology and targets.

Diamond (Screening, Prioritizing, and Harmonizing)

Diamond is a computational platform and a neural network that can identify new cancer immunological targets for T cells and B cells. Diamond is an artificial intelligence and machine learning approach that can identify novel surface tumor targets. It uses public and proprietary samples and can expand into the tumor target space.

Diamond addresses the main challenges in today's clinical pipeline: *target identification*.

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