PRESS RELEASE

ERYTECH Announces Publication of a Paper on Red-Blood Cell Characterization in High Impact Peer Reviewed Journal

- **The Paper "Multiparametric characterization of red blood cell physiology after hypotonic dialysis based drug encapsulation process" is available in the October 2021 (Volume 11, Issue 10) of Acta Pharmaceutica Sinica B (APSB)**
- **The characterization demonstrated that ERYCAPS® hypotonic dialysis encapsulation process induces some changes to red blood cell (RBC) features without substantially affecting their survival or their capacity to carry therapeutics**

Cambridge, MA (U.S.) and Lyon (France), November 10, 2021 – ERYTECH Pharma (Nasdaq & Euronext: ERYP), a clinical-stage biopharmaceutical company developing innovative therapies by encapsulating therapeutic drug substances inside red blood cells, today announced the publication of a multiparametric characterization of red blood cells after its proprietary technology ERYCAPS® in high impact journal, Acta Pharmaceutica Sinica B. www.sciencedirect.com/science/article/pii/S221138352100410X

The aim of the study was to evaluate the impact of hypotonic dialysis using ERYCAPS® encapsulation process on RBCs physiology and integrity, to ensure they can properly achieve their function as drug carriers. Hematological parameters, morphology, proteomic and metabolomic profiles, deformability, lesion markers as well as *in vivo* biodistribution in a mouse model, were assessed. These parameters were compared between processed RBCs loaded with L-asparaginase ("eryaspase"), processed RBCs without drug and non-processed RBCs.

This multiparametric study was performed in collaboration with academic experts having different expertise in RBC field (Claude Bernard University, 3P5 proteom'IC facility at Paris University, Cochin institute in France and Colorado University in USA).

In conclusion, a full and in-depth characterization of the physiological, biophysical, metabolomic, proteomic and cellular properties of RBCs after drug loading was performed. This wide characterization allowed to have a systemic and integrative approach to demonstrate that ERYCAPS® hypotonic dialysis encapsulation process induces some changes to RBCs features without substantially affecting their survival or their capacity to carry therapeutics making them suitable as drug carriers.

"*These results are consistent with the results of our clinical trials that demonstrated a favorable safety and prolonged half-life of encapsulated ASNase compared to free ASNase*," **said Gil Beyen, CEO of ERYTECH.** "*With this study, we confirm the promising potential of RBCs as drug carriers. ERYTECH is committed to advancing the field of RBC-based therapeutics in difficult to treat cancers and selected rare diseases.*"

"This is the first time such a full and in-depth analysis was performed to characterize RBCs after hypotonic dialysis to ensure their efficacy and safety as drug carriers", **said Phillippe Connes, an international expert of red blood cell physiology and rheology, Full Professor at the University of Lyon 1, and co-author of the paper.** "*Further studies to characterize the therapeutic-encapsulated RBCs in physiological environments would be warranted to better understand how they remain viable and metabolically active in the bloodstream after infusion.*"

About ERYTECH and eryaspase

ERYTECH is a clinical-stage biopharmaceutical company developing innovative red blood cell-based therapeutics for severe forms of cancer and orphan diseases. Leveraging its proprietary ERYCAPS® platform, which uses a novel technology to encapsulate drug substances inside red blood cells, ERYTECH is developing a pipeline of product candidates for patients with high unmet medical needs. ERYTECH's primary focus is on the development of product candidates that target the altered metabolism of cancer cells by depriving them of amino acids necessary for their growth and survival.

The Company's lead product candidate, eryaspase, which consists of L-asparaginase encapsulated inside donor-derived red blood cells, targets the cancer cells' altered asparagine and glutamine metabolism. The proof of concept of eryaspase as a cancer metabolism agent was established in different trials in acute lymphoblastic leukemia (ALL) and pancreatic cancer. An investigator sponsored Phase 2 trial (IST) evaluating the use of eryaspase in ALL patients who developed hypersensitivity reactions to pegylated asparaginase recently reported positive results, based on which the Company intends to request approval in the United States and potentially other territories. The Company is also pursuing a Phase 1 investigator-sponsored clinical trial in first-line pancreatic cancer.

Eryaspase received Fast Track designation from the U.S. Food and Drug Administration (FDA) for ALL and pancreatic cancer, and eryaspase benefits from orphan drug status for the treatment of both these indications in the United States and in Europe.

ERYTECH produces its product candidates for treatment of patients in Europe at its GMP-approved manufacturing site in Lyon, France, and for patients in the United States at its GMP manufacturing site in Princeton, New Jersey, USA. Eryaspase is not an approved medicine.

ERYTECH is listed on the Nasdaq Global Select Market in the United States (ticker: ERYP) and on the Euronext regulated market in Paris (ISIN code: FR0011471135, ticker: ERYP). ERYTECH is part of the CAC Healthcare, CAC Pharma & Bio, CAC Mid & Small, CAC All Tradable, EnterNext PEA-PME 150 and Next Biotech indexes.
For more information, please visit www.erytech.com

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Forward-looking Information

This press release contains forward-looking statements including, but not limited to, statements with respect to the clinical development and regulatory plans of eryaspase including the timing of results from the TRYbeCA-1 trial, the Company's ability to attend a pre-BLA meeting with the FDA and start a rolling BLA submission of eryaspase in the second half of 2021, the timing of potential BLA submissions to the FDA for the treatment of second-line pancreatic cancer and acute lymphoblastic leukemia, the timing of a potential submission to the EMA for the treatment of second-line pancreatic cancer, the Company's ability to obtain regulatory approval for the treatment of patients with acute lymphoblastic leukemia who developed hypersensitivity reactions to PEG-asparaginase, the Company's ability to extend the indication scope of eryaspase, the Company's ability for additional funding under the OCABSA financing agreement, and the Company's anticipated cash runway. Certain of these statements, forecasts and estimates can be recognized by the use of words such as, without limitation, "believes", "anticipates", "expects", "intends", "plans", "seeks", "estimates", "may", "will" and "continue" and similar expressions. Such statements, forecasts and estimates are based on various assumptions and assessments of known and unknown risks, uncertainties and other factors, which were deemed reasonable when made but may or may not prove to be correct. Actual events are difficult to predict and may depend upon factors that are beyond ERYTECH's control. There can be no guarantees with respect to pipeline product candidates that the candidates will receive the necessary regulatory approvals or that they will prove to be commercially successful. Therefore, actual results and timeline may turn out to be materially different from the anticipated future results, performance or achievements expressed or implied by such statements, forecasts and estimates. Further description of these risks, uncertainties and other risks can be found in the Company's regulatory filings with the French Autorité des Marchés Financiers (AMF), the Company's Securities and Exchange Commission (SEC) filings and reports, including in the Company's 2020 Document d'Enregistrement Universel filed with the AMF on March 8, 2021 and in the Company's Annual Report on Form 20-F filed with the SEC on March 8, 2021 and future filings and reports by the Company. Given these uncertainties, no representations are made as to the accuracy or fairness of such forward-looking statements, forecasts and estimates. Furthermore, forward-looking statements, forecasts and estimates only speak as of the date of this press release. Readers are cautioned not to place undue reliance on any of these forward-looking statements. ERYTECH disclaims any obligation to update any such forward-looking statement, forecast or estimates to reflect any change in ERYTECH's expectations with regard thereto, or any change in events, conditions or circumstances on which any such statement, forecast or estimate is based, except to the extent required by law. In addition, the COVID-19 pandemic and the associated containment efforts have had a serious adverse impact on the economy, the severity and duration of which are uncertain. Government stabilization efforts will only partially mitigate the consequences. The extent and duration of the impact on the Company's business and operations is highly uncertain, and that impact includes effects on its clinical trial operations and supply chain. Factors that will influence the impact on the Company's business and operations include the duration and extent of the pandemic, the extent of imposed or recommended containment and mitigation measures, and the general economic consequences of the pandemic. The pandemic could have a material adverse impact on the Company's business, operations and financial results for an extended period of time.