Advancing Triage of Acute Lymphoblastic Leukemia Subtypes Diagnosis: Label-Free Raman Spectroscopy for Precise Single-Cell Phenotyping and Subtype Classification

Patrycja Leszczenko[a,b], Anna M. Nowakowska[a], Patrycja Dawiec[a,b], Karolina Czuja[a], Justyna Jakubowska[c], Marta Zabczynska[c], Agata Pastorczak[c,d], Kinga Ostrowska[c,*], Szymon Tott[a], Wojciech Mlynarski[c,d], Malgorzata Baranska[a,e], Katarzyna Majzner[a,*]

[a] *Jagiellonian University, Faculty of Chemistry, Department of Chemical Physics, Gronostajowa 2, 30-387 Krakow, Poland*

[b] *Jagiellonian University, Doctoral School of Exact and Natural Sciences, Lojasiewicza 11, 30-348 Krakow, Poland*

[c] *Medical University of Lodz, Department of Pediatric, Oncology and Hematology, Sporna 36/50, 91-738 Lodz, Poland*

[d] *Medical University of Lodz, Department of Genetic Predisposition to Cancer, Czechoslowacka 4, 92-216 Lodz, Poland*

[e] *Jagiellonian University, Jagiellonian Centre for Experimental Therapeutics, Bobrzynskiego 14, 30-348 Krakow, Poland*

* *Corresponding Authors. K. Ostrowska: kinga.ostrowska@umed.lodz.pl, K. Majzner: katarzyna.b.majzner@uj.edu.pl, +48 12 686 24 00*

Supplementary Materials

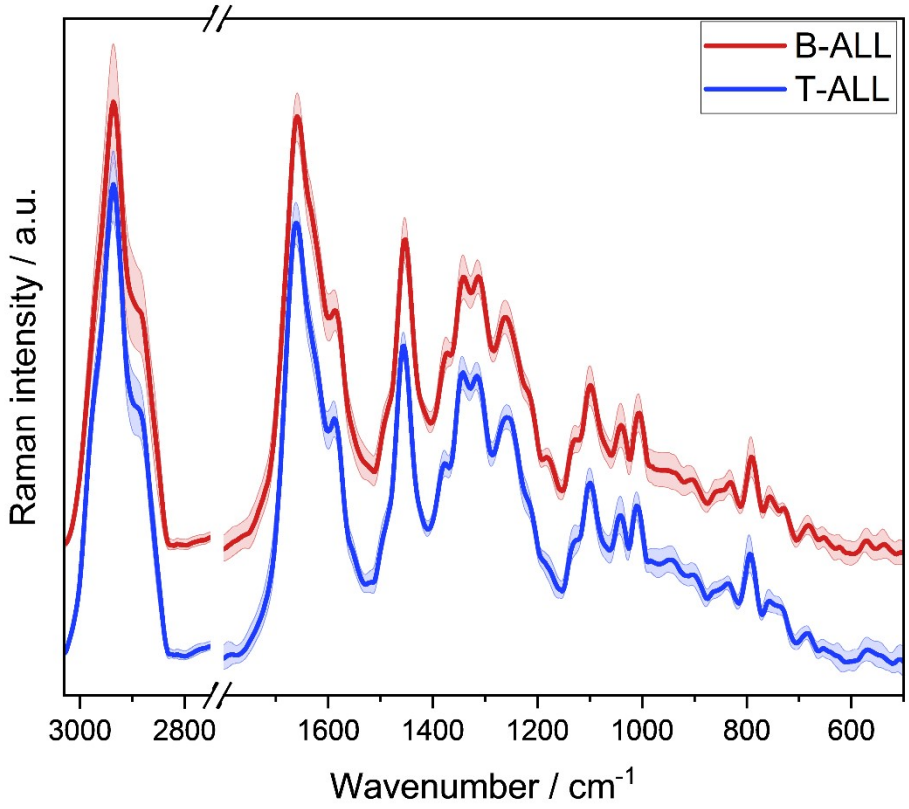

Fig. S1 Comparison of averaged Raman spectra and the respective standard deviation of B-ALL (518 cells) and T-ALL (430 cells).

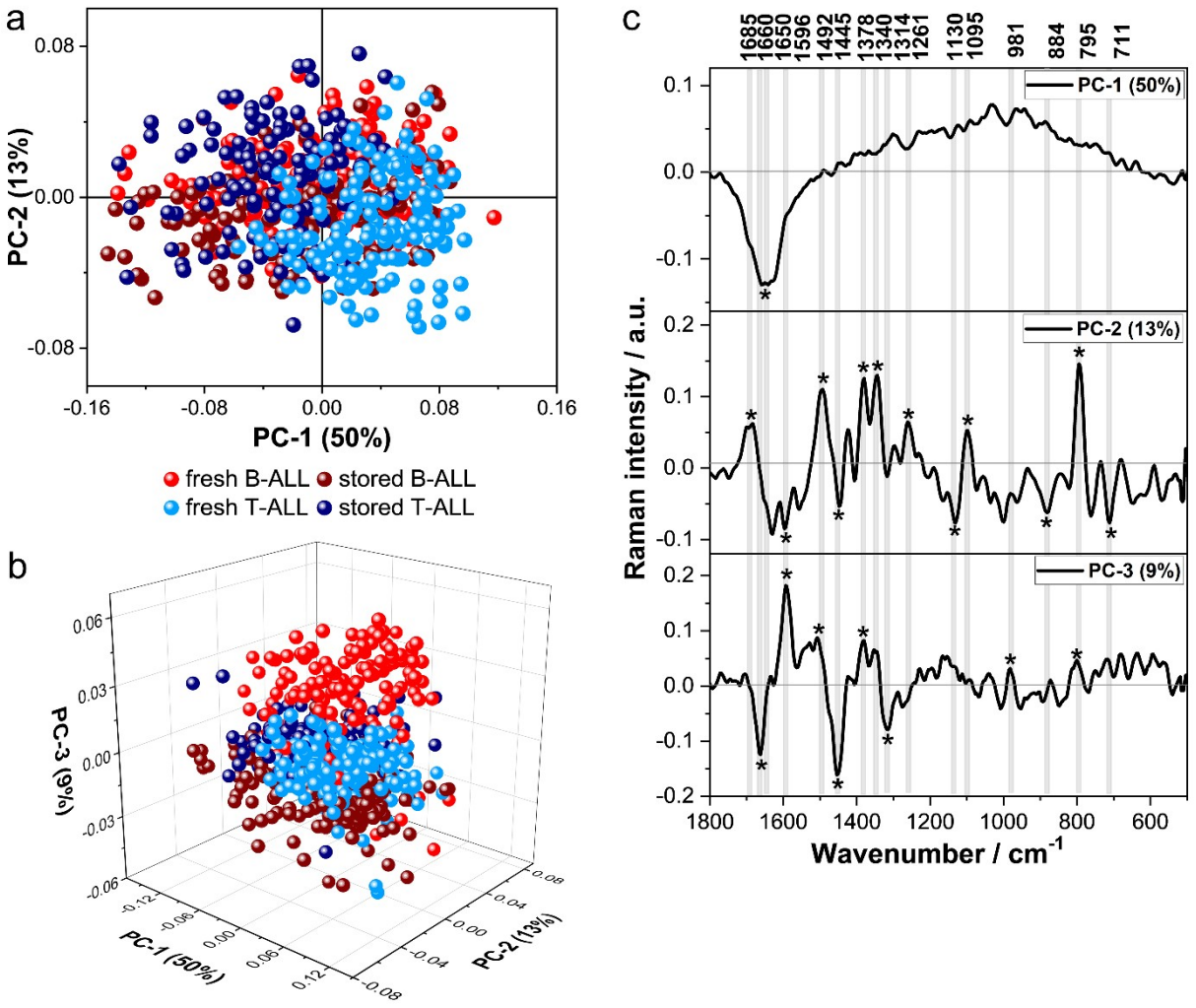

Fig. S2 The 2D score plot (A), 3D score plot (B), and loadings (C) of PCA representative for B-ALL and T-ALL lymphoblasts including the method of handling of the samples – stored B-ALL (claret, n = 230), fresh B-ALL (red, n = 288), stored T-ALL (navy, n = 201) and fresh T-ALL (bright blue, n = 229), in the spectral range of 1800-500 cm^{-1}; laser excitation of λ = 532 nm.