processes

MDPI

Article

Dielectric spectroscopy to improve the production of rAAV used in Gene Therapy

Daniel A.M. Pais [1,2,3], Chris Brown[3], Anastasia Neuman[3], Krishanu Mathur[3], Inês A. Isidro[1,2], Paula M. Alves[1,2] and Peter G. Slade[3,*]

[1] iBET - Instituto de Biologia Experimental e Tecnológica, Apartado 12, 2781- 901 Oeiras, PORTUGAL; dpais@ibet.pt (D.A.M.P.), iaisidro@ibet.pt (I.A.I.), marques@ibet.pt (P.M.A.)

[2] ITQB-NOVA, Instituto de Tecnologia Química e Biológica António Xavier, Universidade Nova de Lisboa, Av. da República, 2780-157 Oeiras, Portugal;

[3] Voyager Therapeutics, 75 Sidney St, Cambridge, MA 02139, USA; chrisb3c@gmail.com (C.B.), annaneu@seas.upenn.edu (A.N.), kmathur@vygr.com (K.M.)

* Correspondence: pslade@vygr.com

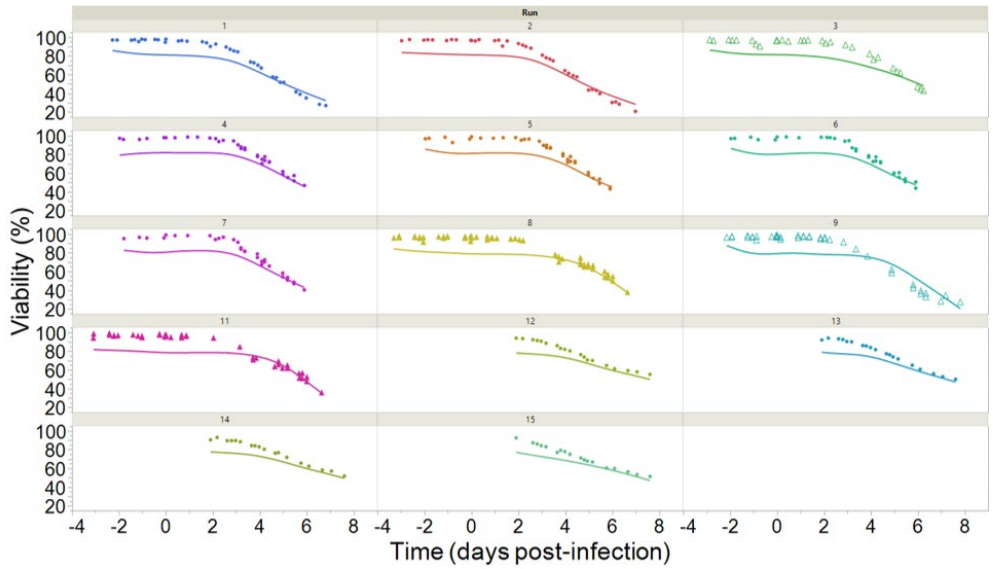

Figure S1 - Viability reference data and corresponding predictions using only the conductivity data. For each run, a linear fit was obtained between conductivity and viability, considering only the data after viability started to decrease. This simple fit can be applied in the process-to-target.

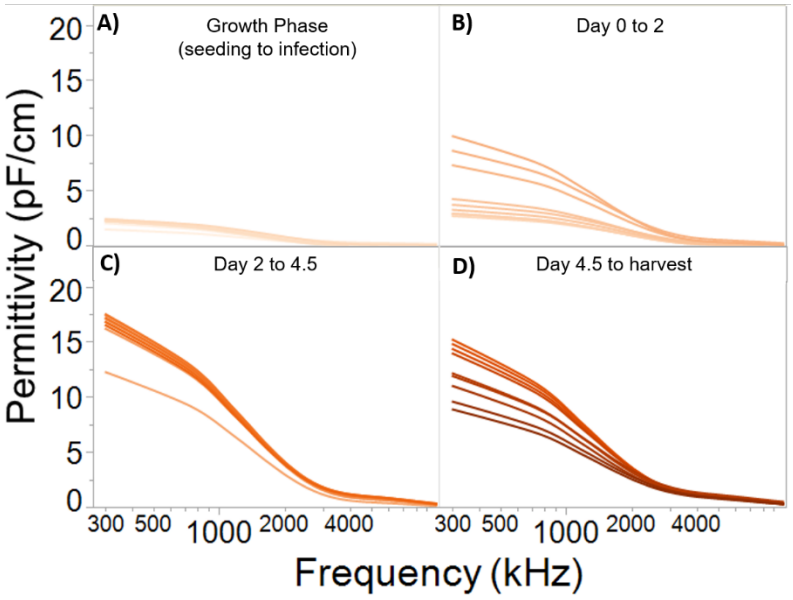

Figure S2 - Representative beta dispersion curve evolution profiles for different culture phases, here shown for batch number 1. Each curve is colored according to the culture time (the darker the color, the closer the timepoint is to the harvest time). (**A**) Growth phase (from cell seeding to time of infection). (**B**) From infection day to day 2 post infection. (**C**) Day 2 to day 4.5 after infection. (**D**) Day 4.5 to harvest timepoint.

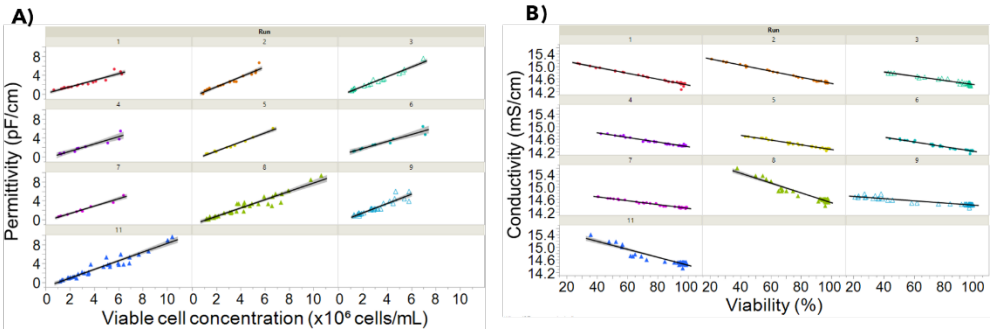

Figure S3 - Linear correlation between permittivity and viable cell concentration (**A**) and conductivity and viability (**B**). For viable cell concentration, only data until day two post infection is shown, since after day 2 cell diameter increases. For viability, only data after day two post infection is shown, corresponding to the timepoints of viability decrease.

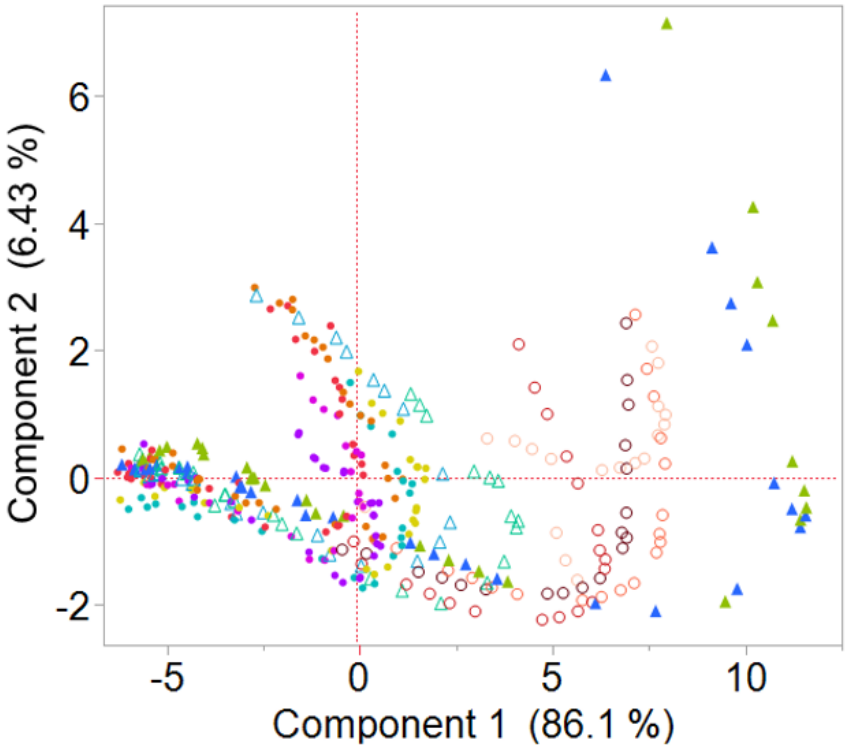

Figure S4 - Scores for the two first principal components for all runs. The 22 permittivity related variables were utilized to calculate the principal components. Filled circles represent "standard" batches, filled triangles represent "cell density effect" batches, empty triangles represent "empty batches" and the empty circles represent "blend batches". As it can be observed, even though "blend" batches were infected at the same cell concentration as the "standard" batches, their permittivity data is more similar to the "cell density effect" ones, similar to what was observed in the specific rAAV titers (Figure 8).