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## Artificial 3D culture systems for T-cell expansion

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Adoptive cell therapy, which consists of the extraction, manipulation, and administration of ex vivo generated autologous T cells to patients, is an emerging alternative to regular procedures in cancer treatment. Nevertheless, these personalized treatments require laborious and expensive laboratory procedures that should be alleviated to enable their incorporation into the clinics. With the objective to improve the ex vivo expansion of large amounts of specific T cells, we used three-dimensional (3D) structures during their activation

with artificial antigen presenting cells, thus resembling the natural environment of the secondary lymphoid organs. Thus, the activation, proliferation, and differentiation of T cells were analyzed when cultured in the presence of two 3D systems, Matrigel and a 3D polystyrene scaffold, showing an increase in cell proliferation compared to standard suspension systems. Moreover, new synthetic biomaterials are being investigated with the same purpose.

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