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# Multi-epitope Folate Receptor Alpha-loaded Dendritic Cell Vaccine

National Cancer Institute

## Source

National Cancer Institute. *Multi-epitope Folate Receptor Alpha-loaded Dendritic Cell Vaccine*. NCI Thesaurus. Code C114990.

A cell-based vaccine composed of autologous-monocyte-derived dendritic cells (DCs) loaded with five immunogenic peptide epitopes, derived from the tumor-associated antigen human folate receptor alpha (FR alpha or FOLR1), including FR30, FR56, FR76, FR113, and FR238, with potential immunomodulatory and antineoplastic activity. Ex vivo treatment of the DCs with a p38 inhibitor decreases p38-mediated signaling and enhances ERK activation. This may allow, upon intradermal administration of the multi-epitope FR alpha-loaded DC vaccine into the patient, for decreased activation and expansion of CD4<sup>+</sup> regulatory T-cells (Tregs), increased differentiation and expansion of interleukin-17 secreting T helper cells (Th17) and activation of CD8<sup>+</sup> CTLs, which induces a strong anti-tumor T-cell immune response against FR alpha-overexpressing tumor cells. FR alpha is a high-affinity folate-binding protein and a member of the folate receptor family; this receptor is overexpressed in the majority of ovarian cancers and in about approximately 50% of breast cancers.