Transcriptional targeting: the viral vector can be designed to only kill tumour cells by placing the delivered therapeutic gene under the control of a prostate specific control element, such as the transglutaminase promoter.

Receptor targeting: virus surface proteins can be altered such that they only attach to receptors specific to cancer cells.

VIRUS RE-TARGETING

NORMAL CELL

TUMOUR CELL

Gene therapy vector, e.g., adenovirus (not to scale)

TUMOUR MASS COMPRISING

CANCEROUS CELL TYPES

TRANSDUCED WITH A MODIFIED PROSTATE-CELL-TARGETING BACULOVIRUS

PATIENT DERIVED MALIGNANT EPITHELIAL CELLS

The GFP reporter gene shows proof of principle. Eventually it will be substituted by a therapeutic gene, such as nitroreductase or thymidine kinase; these genes are designed to activate a normally inert pro-drug to specifically kill the cancer cells.