Prostate-specific membrane antigen (PSMA) is a membrane-bound glycoprotein highly restricted to prostatic epithelial cells. It is expressed by virtually all prostate cancers and its expression is further increased in poorly differentiated, metastatic, and hormone-refractory carcinomas.

Over the past two decades, monoclonal antibody technology has had an increasing impact on clinical diagnostic and therapeutic options, and this is true in the realm of managing prostate cancer.

Given its membrane-bound character, PSMA is an ideal sentinel molecule for use in targeting prostatic cancer cells. Monoclonal antibodies specific for PSMA are available, beginning with the antibody 7E11-C5.3 which originally defined PSMA and which has been developed for use in cancer detection via immunoscintigraphy in the ProstaScint® scan. The monoclonal antibody Sp2/0-Ag14 is a recently developed primary IgG2bκ mouse anti-human PSMA.

In the present study the immunohistochemical properties of anti-PSMA Sp2/0-Ag14 clone with primary prostate cancer tissue and its utility in the detection of hematogenous prostate cancer cell dissemination have been examined.

The anti-PSMA Sp2/0-Ag14 clone had consistent PSMA immunoreactivity with prostate adenocarcinoma with the greatest extent and intensity observed in the highest tumor grades. The antibody also detected circulating prostate cancer cells in all stage IV patients examined with no ectopic signals.

This study demonstrates the utility of anti-PSMA Sp2/0-Ag14 monoclonal antibody in the early detection of localized prostate cancer and in the detection of occult peripheral blood metastasis after cure treatment such as radical prostatectomy allowing it to be useful as a tissue-based prostate carcinoma marker and as a peripheral blood metastatic surveillance marker during or after therapy.