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(54) Title of the invention : METHOD FOR PREDICTING PROGNOSIS AND GUIDING TREATMENT DE-ESCALATION IN HPV POSITIVE HEAD AND NECK CANCERS

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(57) Abstract :
The present invention relates to a method Biomarker for predicting prognosis among Head and Neck cancer patients who are undergoing standard cancer therapy involving chemo-radiotherapy. This method includes measuring the expression of p16 a marker of HPV infection (101), NQO1- a surrogate of NRF2 activity (102), and p53 (103) by immunohistochemistry in FPPE bio specimen from patients with Head and Neck cancer. The candidate with p16high, NQO1low, and p53low signatures shall be stratified as better responders to treatment and the same can be guided towards treatment de-escalation. The definition of high and low expression shall be decided based on the traditional IHC scoring and or Histoscore H-score. (Ref. Fig. 1)

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(54) Title of the invention : METHOD TO INHIBIT NRF2 ACTIVITY USING HPV E6/E7 FOR SENSITIZING TO CHEMO-RADIOTHERAPY

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(57) Abstract :
Resistance to chemotherapy and radiotherapy remains a major obstacle in the successful treatment of cancer. One such transcription factor, the hyper-activation of which is associated with many human cancers including lung, oesophageal, head and neck, urinary bladder and gastrointestinal cancers is NRF2 signalling. The pharmacological inhibition of NRF2 gene in various cancer cells using siRNA or CRISPR/Cas9 approaches has been shown to deplete the antioxidant defences and sensitize to chemoradiation therapy. Therefore, targeting this cell survival pathway for inhibition is a best possible strategy for treatment of resistant tumours. Through this method we demonstrate that the ectopic expression of HPV E6/E7 proteins as adjuvant therapeutics to inhibit NRF2 pathway and thereby sensitize cancers to chemoradiotherapy. The disclosed method is to be used as potential therapeutic agent for treatment of various diseases or conditions involving oxidative stress and or inflammation, including but not limited to cancers.

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