Supplementary Materials and methods

Detailed methods of immunohistochemistry

A single representative block from each tumour was sectioned at 4µm onto positively charged slides (Superfrost plus, Menzel-Glaser, Germany). Slides were then stained using the Leica BondIII autostainer (Leica microsystems, Mount Waverley, Victoria, Australia) used according to the manufacturer's protocol. Briefly, this involved slides being dewaxed in Bond Dewax solution (AR9222, Leica Microsystems) and hydrated in Bond Wash solution (AR9590, Leica Microsystems). Heat induced epitope retrieval was performed for 60 minutes in the manufacturer's alkaline retrieval solution ER2 (VBS part no: AR9640, Leica Microsystems). Slides were then incubated with the primary antibody for 30 minutes at room temperature. Antibody detection was performed using the biotin free Bond Polymer Define Detection System (DS9713 Leica Microsystems) according to the manufacturer's protocol. Slides were then counterstained with haemtoxylin. Slides were considered positive if more than 20% of neoplastic cells stained positively.