



Fig. S1. New primary melanoma with 0.5 mm Clark level III during vemurafenib treatment in patient A (a): immunohistochemistry for p16. New primary melanoma 0.5 mm, Clark level III in patient B: H&E (b), immunohistochemistry for BRAF V600E (c) and for pERK of a squamous cell carcinoma from the same patient (d). Patient C with a 0.6 mm Clark level III secondary malignant melanoma under vemurafenib treatment: H&E (e), immunohistochemistry for ERK (f), Rac1-GTP (g) and BRAF V600E (h). Patient D with a dysplastic naevus: H&E (i) and immunohistochemistry for HMB45 (k), ERK (l), Rac1-GTP (m) and BRAF V600E (n). Clinical image of a distant metastasis (met.) in patient c (o), immunohistochemistry for BRAF V600E (p) is highly positive but shows low expression for pERK (q). (Arrows indicate localisation of melanoma cells).