

### **POSTER PRESENTATION**

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# Vaccination with long NY-ESO-1 79-108 peptide and CpG-B leads to robust activation of CD4 and CD8 T cell responses in stage III/IV melanoma patients, and a new HLA-DR7 epitope

Petra Baumgartner<sup>1</sup>, Carla Costa Nunes<sup>2</sup>, Amélie Cachot<sup>2</sup>, Hélène Maby-El Hajjami<sup>3</sup>, Laurène Cagnon<sup>4</sup>, Marion Braun<sup>5</sup>, Laurent Derré<sup>6</sup>, Jean-Paul Rivals<sup>7</sup>, Donata Rimoldi<sup>2</sup>, Emanuela Romano<sup>4</sup>, Olivier Michielin<sup>8</sup>, Pedro Romero<sup>3</sup>, Camilla Jandus<sup>2\*</sup>, Daniel E Speiser<sup>3</sup>

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Although promising, the combination of long synthetic peptides and CpG-B oligodeoxynucleotides has not yet been tested as cancer vaccine. In this Phase I trial, 19 patients received a mean of 8 (range 1-12) monthly vaccines s.c. composed of the long synthetic NY-ESO79-108 peptide and CpG-B (PF-3512676), emulsified in Montanide ISA-51. In 18/18 evaluable patients, vaccination induced responses of both CD8 and CD4 T cells, starting early after initiation of immunotherapy and lasting for many months. The T cells responded antigenspecifically, with strong secretion of IFN $\gamma$  and TNF $\alpha$ , irrespective of patient's HLAs. The most immunogenic region of the vaccine peptide was the NY-ESO-183-97 sequence, inducing HLA-DR or -DP restricted CD4 T cell responses in all patients tested. We discovered a novel and highly immunogenic epitope (HLA-DR7/NY-ESO-187-99); 5/5 HLA-DR7+ patients generated strong CD4 T cell responses, as detected directly ex-vivo with fluorescent multimers. Thus, vaccination with the long synthetic NY-ESO-179-108 peptide combined with the strong immune adjuvant CpG-B, a TLR-9 agonist, induced integrated, robust and functional CD8 and CD4 T cell responses in melanoma patients, supporting the further development of this immunotherapeutic approach.

 $^{2}\mbox{Ludwig}$  Cancer Research Center, University of Lausanne, Lausanne, Switzerland

Full list of author information is available at the end of the article

#### Authors' details

<sup>1</sup>Ludwig Center for Cancer Research at the University of Lausanne and Department of Oncology, University Hospital of Lausanne, Lausanne, Switzerland. <sup>2</sup>Ludwig Cancer Research Center, University of Lausanne, Lausanne, Switzerland. <sup>3</sup>Department of Oncology, Ludwig Cancer Research Center, University of Lausanne, Lausanne, Switzerland. <sup>4</sup>Department of Oncology, University Hospital Center (CHUV), Lausanne, Switzerland. <sup>5</sup>Miltenyi Biotech GmbH, Bergisch Galdbach, Germany. <sup>6</sup>Urology Department, University Hospital Center (CHUV), Lausanne, Switzerland. <sup>7</sup>Department, University Hospital Center (CHUV), Lausanne, University Hospital Center (CHUV), Lausanne, Switzerland. <sup>8</sup>Centre Hospitalier University Hospital Center (CHUV), Lausanne, Switzerland.

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