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Research interest

The group is involved clinical research from early phase I to large phase III clinical trials, in the field of Radiotherapy.

A second key point of interest is translational research in radiotherapy embracing several aspects such as innovation in radiotherapy delivery and imaging, predictive markers for tumor response, and combining new molecular targeted drugs and immunotherapy with radiotherapy.

More recently, the group has focused on combining immunotherapy with radiotherapy.

In addition, the group is dedicated to evaluating the differential effect associated with new types of ultra high dose rate radiotherapy.

Research group projects

Prof. Bourhis and his team aim to open the way for innovative research fields and

programmes in the field of radiation oncology. A current leading project is the establishment of the CHUV radiation oncology platform as an Accuray International Flagship Reference Site.

Other ongoing projects include combining radiotherapy with new molecular targeted drugs and with immunotherapy (the latter programme being under the leadership of Prof. George Coukos), creating a research program & training center for developing advanced 4D radiotherapy (under the leadership of Prof. Esat Ozsahin), developing "Flash" radiotherapy and defining the optimal setting for clinical transfer (with Dr. M-C Vozenin, Prof. Bochud, Dr Raphaël Moeckli and Dr Jean-François Germond) and initiating new clinical trials which test the value of high precision radiotherapy.

Selected publications

- Montay-Gruel P, Petersson K, Jaccard M, Boivin G, Germond JF, Petit B, Doenlen R, Favaudon V, Bochud F, Bailat C, Bourhis J, Vozenin MC. *Irradiation in a flash: Unique sparing of memory in mice after whole brain irradiation with dose rates above 100Gy/s. Radiother Oncol.* 2017 May 22. pii: S0167-8140(17)30365-1
- Herrera FG, Bourhis J, Coukos G. *Radiotherapy combination opportunities leveraging immunity for the next oncology practice. CA Cancer J Clin.* 2017 Jan;67(1):65-85
- Péguret N, Ozsahin M, Zeverino M, Belmondo B, Durham AD, Lovis A, Simons

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and Neck: A Phase III, Randomized, Double-Blind, Placebo-Controlled Study. **J Clin Oncol.** 2015 Dec 10;33(35):4202-9

- Favaudon V, Caplier L, Monceau V, Pouzoulet F, Sayarath M, Fouillade C, Poupon MF, Brito I, Hupé P, Bourhis J, Hall J, Fontaine JJ, Vozenin MC. *Ultra-high dose-rate FLASH irradiation increases the differential response between normal and tumor tissue in mice.* **Sci Transl Med.** 2014 Jul 16;6(245):245ra93

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