

Supplementary Materials: Animal Models in Microbeam Radiation Therapy: A Scoping Review

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A) Electronic search strategies conducted on October 3rd, 2019:

Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Daily and Versions(R) <1946 to October 02, 2019>

Search Strategy:

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- 1 exp Radiotherapy/ (178770)
 - 2 exp Radiation Tolerance/ (48832)
 - 3 exp Radiation Injuries/ (67796)
 - 4 Technology, Radiologic/ (14225)
 - 5 exp Tomography, X-Ray computed/ (412775)
 - 6 exp X-Rays/ (28187)
 - 7 (radiation effects or radiotherapy).fx. (375879)
 - 8 or/1-7 (905376)
 - 9 Synchrotrons/ (3303)
 - 10 8 and 9 (1263)
 - 11 (radiat* or irradiat* or radiotherap* or radiolog* or x-ray* or x ray* or xray*).ab,kf,ti. (1172914)
 - 12 (microbeam* or micro-beam).ab,kf,ti. (1595)
 - 13 "synchrotron*".ab,kf,ti. (15961)
 - 14 12 or 13 (17234)
 - 15 (therap* or treat* or effect* or outcome*).ab,kf,ti. (11306032)
 - 16 11 and 14 and 15 (3872)

Embase (Ovid) <1947 to 2019 October 02>

Search Strategy:

- 1 exp synchrotron radiation/ (2730)
- 2 exp synchrotron/ (5593)
- 3 1 or 2 (8147)
- 4 radiotherapy/ (134959)
- 5 cancer radiotherapy/ (188251)
- 6 exp x-ray tomography/ (45783)
- 7 X-Ray/ (64437)
- 8 or/4-7 (415529)
- 9 3 and 8 (1559)
- 10 (radiat* or irradiat* or radiotherap* or radiolog* or x-ray* or x ray* or xray*).kw,dq,tw. (1467788)
- 11 (microbeam* or micro-beam).kw,dq,tw. (1677)
- 12 (synchrotron or synchrotron radiation).kw,dq,tw. (12249)
- 13 11 or 12 (13524)
- 14 (therap* or effect* or treat* or outcome*).kw,tw. (14192639)
- 15 10 and 13 and 14 (3649)
- 16 9 or 15 (4625)
- 17 limit 16 to (embase) (3069)

Cochrane Library

Search Strategy:

- 1 MeSH descriptor: [Radiotherapy] explode all trees (5977)
- 2 MeSH descriptor: [Radiation Tolerance] explode all trees (651)
- 3 MeSH descriptor: [Radiation Injuries] explode all trees (1391)
- 4 MeSH descriptor: [Technology, Radiologic] explode all trees (47)
- 5 MeSH descriptor: [Tomography, X-Ray Computed] explode all trees (4989)
- 6 MeSH descriptor: [X-Rays] explode all trees (46)
- 7 MeSH descriptor: explode all trees and with qualifier(s): [radiation effects - RE] (2898)
- 8 #1 or #2 or #3 or #4 or #5 or #6 or #7 (13441)
- 9 MeSH descriptor: [Synchrotrons] explode all trees (2)
- 10 #8 and #9 (1)
- 11 (radiat* or irradiat* or radiotherap* or radiolog* or x-ray* or x ray* or xray*):ti,ab,kw
(Word variations have been searched) (76228)
- 12 (microbeam or micro-beam):ti,ab,kw (Word variations have been searched) (21)
- 13 (synchrotron*):ti,ab,kw (Word variations have been searched) (24)
- 14 #12 or #13 (44)
- 15 #11 and #14 (27)
- 16 #10 or #15 (27)

Scopus

Search Strategy:

(TITLE-ABS-KEY (radiat* OR irradiat* OR radiotherap* OR radiolog* OR x-ray* OR x AND ray* OR xray*)
AND TITLE-ABS-KEY (microbeam* OR micro-beam* OR synchrotron*) AND TITLE-ABS-KEY (therap* OR
effect* OR outcome* OR treat*))

Search results: 380

Livivo - ZB MED Search portal

Search Strategy:

(Synchrotron OR Microbeam OR Micro-Beam) AND (radiation OR irradiation OR radiotherapy)

Source excluded: Medline

Search results: 54

Clinical Trials.com

Search Strategy:

(synchrotron OR microbeam OR micro-beam) AND (radiation OR irradiation or radiotherapy)

Search results: 4

ICTRP Trial Register (WHO)

Search Strategy:

(synchrotron OR microbeam OR micro-beam) AND (radiation OR irradiation or radiotherapy)

Search results: 2

B) List of the 95 Included Studies:

1. Ansel, David J., Alberto Bravin, and Pantaleo Romanelli. 'Microbeam Radiosurgery Using Synchrotron-Generated Submillimetric Beams: A New Tool for the Treatment of Brain Disorders'. *Neurosurgical Review* 34, no. 2 (April 2011): 133–42. <https://doi.org/10.1007/s10143-010-0292-3>.
2. Bencokova, Z, J Balosso, and N Foray. 'Radiobiological Features of the Anti-Cancer Strategies Involving Synchrotron X-Rays'. *Journal of Synchrotron Radiation* 15, no. 1 (2007): 74–85.
3. Billena, Cole, and Atif J Khan. 'A Current Review of Spatial Fractionation: Back to the Future?' *International Journal of Radiation Oncology Biology Physics* 104, no. 1 (2019): 177–187. <https://doi.org/10.1016/j.ijrobp.2019.01.073>.
4. Blattmann, H, J Gebbers, E Brauerkrisch, a Bravin, G Leduc, W Burkard, M Dimichiel, V Djonov, D Slatkin, and J Stepanek. 'Applications of Synchrotron X-Rays to Radiotherapy'. *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment* 548, no. 1–2 (August 2005): 17–22. <https://doi.org/10.1016/j.nima.2005.03.060>.
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6. Bouchet, A, N Sakakini, M El Atifi, C Le Clec'h, E Brauer, A Moisan, P Deman, P Rihet, G Le Duc, and L Pelletier. 'Early Gene Expression Analysis in 9L Orthotopic Tumor-Bearing Rats Identifies Immune Modulation in Molecular Response to Synchrotron Microbeam Radiation Therapy'. *PLoS ONE [Electronic Resource]* 8, no. 12 (2013): e81874.
7. Bouchet, A, N Sakakini, M El Atifi, C Le Clec'h, E Bräuer-Krisch, L Rogalev, J Laissue, P Rihet, G Le Duc, and L Pelletier. 'Identification of AREG and PLK1 Pathway Modulation as a Potential Key of the Response of Intracranial 9L Tumor to Microbeam Radiation Therapy'. *International Journal of Cancer. Journal International Du Cancer* in print (2014).
8. Bouchet, Audrey, Elke Bräuer-Krisch, Yolanda Prezado, Michèle El Atifi, Léonid Rogalev, Céline Le Clec'h, Jean Albert Laissue, Laurent Pelletier, and Géraldine Le Duc. 'Better Efficacy of Synchrotron Spatially Microfractionated Radiation Therapy Than Uniform Radiation Therapy on Glioma'. *International Journal of Radiation Oncology Biology Physics* 95, no. 5 (2016): 1485–1494. <https://doi.org/10.1016/j.ijrobp.2016.03.040>.
9. Bouchet, Audrey, Benjamin Lemasson, Thomas Christen, Marine Potez, Claire Rome, Nicolas Coquery, Céline Le Clec'H, et al. 'Synchrotron Microbeam Radiation Therapy Induces Hypoxia in Intracerebral Gliosarcoma but Not in the Normal Brain'. *Radiotherapy and Oncology* 108, no. 1 (2013): 143–148. <https://doi.org/10.1016/j.radonc.2013.05.013>.
10. Bouchet, Audrey, Benjamin Lemasson, Géraldine Le Duc, Cécile Maisin, Elke Bräuer-Krisch, Erik Albert Siegbahn, Luc Renaud, et al. 'Preferential Effect of Synchrotron Microbeam Radiation Therapy on Intracerebral 9l Gliosarcoma Vascular Networks'. *International Journal of Radiation Oncology Biology Physics* 78, no. 5 (2010): 1503–1512. <https://doi.org/10.1016/j.ijrobp.2010.06.021>.
11. Bouchet, Audrey, Marine Potez, Nicolas Coquery, Claire Rome, Benjamin Lemasson, Elke Bräuer-Krisch, Chantal Rémy, et al. 'Permeability of Brain Tumor Vessels Induced by Uniform or Spatially Microfractionated Synchrotron Radiation Therapies'. *International Journal of Radiation Oncology Biology Physics* 98, no. 5 (2017): 1174–1182. <https://doi.org/10.1016/j.ijrobp.2017.03.025>.
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13. Bräuer-Krisch, E., H. Requardt, P. Régnard, S. Corde, E. Siegbahn, G. LeDuc, T. Brochard, H. Blattmann, J. Laissue, and A. Bravin. 'New Irradiation Geometry for Microbeam Radiation Therapy'. *Physics in Medicine and Biology* 50, no. 13 (2005): 3103–3111. <https://doi.org/10.1088/0031-9155/50/13/009>.
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