

Birgitte Brinkmann Olsen
Asso. Professor
Clinical Physiology and Nuclear Medicine
Postal address:
Campusvej 55
5230
Odense M
Denmark
Email: birgitte.brinkmann.olsen@rsyd.dk
Phone: 65412981

Qualifications

Molecular Biology, PhD, Department of Biochemistry and Molecular Biology
Award Date: 10. Jan 2006

Biomedicine, MSc, Department of Biochemistry and Molecular Biology
Award Date: 10. Sep 2003

Employment

Associate Professor

KI, Clinical Physiology and Nuclear Medicine
University of Southern Denmark
1. Jan 2015 → 31. Dec 2022

Publications

Auger electron therapy of glioblastoma using [¹²⁵I]5-iodo-2'-deoxyuridine and concomitant chemotherapy – Evaluation of a potential treatment strategy

Madsen, K. L., Therkelsen, A. S. N., Langkjær, N., Olsen, B. B. & Thisgaard, H., 1. May 2021, In: Nuclear Medicine and Biology. 96-97, p. 35-40

Preclinical Evaluation of the Copper-64 Labeled GRPR-Antagonist RM26 in Comparison with the Cobalt-55 Labeled Counterpart for PET-Imaging of Prostate Cancer

Baun, C., Mitran, B., Rinne, S. S., Dam, J. H., Olsen, B. B., Tolmachev, V., Orlova, A. & Thisgaard, H., 18. Dec 2020, In: Molecules. 25, 24

Evaluation of ⁶⁴Cu-labelled GRPR-antagonist RM26 for PET-imaging of prostate cancer in a preclinical model

Rinne, S., Mitran, B., Baun, C., Dam, J. H., Olsen, B. B., Tolmachev, V., Thisgaard, H. & Orlova, A., Sep 2020, In: European Journal of Nuclear Medicine and Molecular Imaging. 47, Suppl. 1, p. 372-373 OP-755.

Improving contrast and detectability - imaging with [⁵⁵Co]Co-DOTATATE in comparison with [⁶⁴Cu]Cu-DOTATATE and [⁶⁸Ga]Ga-DOTATATE

Andersen, T. L., Baun, C., Olsen, B. B., Dam, J. H. & Thisgaard, H., Feb 2020, In: Journal of nuclear medicine : official publication, Society of Nuclear Medicine. 61, 2, p. 228-233

[⁵⁸mCo]Co-DOTA-hEGF: A novel ligand for targeted Auger electron therapy of glioblastoma using convection-enhanced delivery

Laursen, V., Baun, C., Aaberg Poulsen, C., Olsen, B. B., Dam, J. H., Jensen, A. & Thisgaard, H., May 2019, In: Journal of Labelled Compounds and Radiopharmaceuticals. 62, S1, p. S511-S512

[Co-55]Co-DOTATATE improves PET imaging contrast of somatostatin receptor expressing tumours: Comparison with [Cu-64] Cu-DOTATATE and [Ga-68]Ga-DOTATATE

Thisgaard, H., Andersen, T. L., Baun, C., Dam, J. H. & Olsen, B. B., May 2019, In: Journal of Labelled Compounds and Radiopharmaceuticals. 62, S1, p. S454-S455

Preparation and evaluation of [F-18] AIF-NOTA-NOC for PET imaging of neuroendocrine tumors

Dam, J. H., Langkjær, N., Baun, C. & Olsen, B. B., May 2019, In: Journal of Labelled Compounds and Radiopharmaceuticals. 62, S1, p. S416-S417

Linked Hexokinase and Glucose-6-Phosphatase Activities Reflect Grade of Ovarian Malignancy

Olsen, B. B., Gjedde, A., Vilstrup, M. H., Johnsen, I. B. G., Neumann, G., Torigian, D. A., Alavi, A. & Høilund-Carlsen, P. F., Apr 2019, In: *Molecular Imaging and Biology*. 21, 2, p. 375-381

Chelation, formulation, encapsulation, retention, and in vivo biodistribution of hydrophobic nanoparticles labelled with ⁵⁷Co-porphyrin: Oleylamine ensures stable chelation of cobalt in nanoparticles that accumulate in tumors

Hervella, P., Dam, J. H., Thisgaard, H., Baun, C., Olsen, B. B., Høilund-Carlsen, P. F. & Needham, D., 10. Dec 2018, In: *Journal of Controlled Release*. 291, p. 11-25

Effects of insulin and blood glucose on FDG-uptake in a mouse lung tumour model

Baun, C., Nielsen, A. L., Gerke, O., Falch Braas, K., Olsen, B. B., Thisgaard, H. & Høilund-Carlsen, P. F., Oct 2018, In: *European Journal of Nuclear Medicine and Molecular Imaging*. 45, Suppl. 1, p. S563 1 p., EP-0662.

The use of radiocobalt as a label improves imaging of EGFR using DOTA-conjugated Affibody molecule

Garousi, J., Andersson, K. G., Dam, J. H., Olsen, B. B., Mitran, B., Orlova, A., Buijs, J., Ståhl, S., Löfblom, J., Thisgaard, H. & Tolmachev, V., 1. Dec 2017, In: *Scientific Reports*. 7, 10 p., 5961.

Formulation and in vivo biodistribution of ⁵⁷Co-porphyrin-labelled hydrophobic liquid nanoparticles

Hervella, P., Dam, J. H., Thisgaard, H., Baun, C., Olsen, B. B., Høilund-Carlsen, P. F. & Needham, D., Oct 2017, In: *European Journal of Nuclear Medicine and Molecular Imaging*. 44, Suppl. 2, p. 307-308 OP-533.

[^{58m}Co]Co-DOTA-PSMA-617: A novel radioligand for Auger electron therapy of prostate cancer

Thisgaard, H., Olsen, B. B., Baun, C. & Dam, J. H., May 2017, In: *Journal of Labelled Compounds and Radiopharmaceuticals*. 60, Suppl. 1, p. S327 1 p., P 167.

[⁵⁵Co]Co-DOTA-PSMA-617 for PET/CT Imaging of Prostate Cancer in Xenograft Mice

Dam, J. H., Olsen, B. B., Baun, C. & Thisgaard, H., 2017.

[⁵⁵Co]Co-DOTA-PSMA-617 for PET/CT Imaging of Prostate Cancer in Xenograft Mice

Dam, J. H., Olsen, B. B., Baun, C. & Thisgaard, H., 2017, In: *Journal of Labelled Compounds and Radiopharmaceuticals*. 60, Suppl. 1, p. S640 1 p., P 458 .

A PSMA Ligand Labeled with Cobalt-55 for PET Imaging of Prostate Cancer

Dam, J. H., Olsen, B. B., Baun, C., Høilund-Carlsen, P. F. & Thisgaard, H., 2017, In: *Molecular Imaging and Biology*. 19, 6 , p. 915-922

Evaluation of somatostatin and nucleolin receptors for therapeutic delivery in non-small cell lung cancer stem cells applying the somatostatin-analog DOTATATE and the nucleolin-targeting aptamer AS1411

Holmboe, S., Hansen, P. L., Thisgaard, H., Block, I., Müller, C., Langkjær, N., Høilund-Carlsen, P. F., Olsen, B. B. & Mollenhauer, J., 2017, In: *PLOS ONE*. 12, 5, 12 p., e0178286.

Identification of mediators in media-transferred radiation-induced bystander effect in breast cancer cells

Madsen, K. L., Høilund-Carlsen, P. F. & Olsen, B. B., 2017, In: *European Journal of Nuclear Medicine and Molecular Imaging*. 44, Suppl. 2, p. 812 EP-0892.

Biological mechanisms of FDG uptake in nonsmall cell lung cancer

Christlieb, S. B., Olsen, B. B., Antonsen Segtnan, E., Gerke, O., Olsen, K. E. & Høilund-Carlsen, P. F., 16. Oct 2016.

Radiation-resistant cancer stem cells are sensitive to Auger-electron emission

Olsen, B. B., Høilund-Carlsen, P. F. & Thisgaard, H., 16. Oct 2016.

Dual time-point FDG PET/CT and FDG uptake and related enzymes in lymphadenopathies: preliminary results

Christlieb, S. B., Nørgaard Strandholdt, C., Olsen, B. B., Mylam, K. J., Larsen, T. S., Nielsen, A. L., Rohde, M., Gerke, O., Olsen, K. E., Møller, M. B., Kristensen, B. W., Abildgaard, N., Alavi, A. & Høilund-Carlsen, P. F., Sep 2016, In: *European*

Evaluation of nucleolin and somatostatin receptor targeting for therapeutic delivery to lung cancer stem cells

Hansen, P. L., Holmboe, S., Olsen, B. B., Thisgaard, H., Christiansen, H., Schmidt, S., Block, I., Müller, C., Langkjær, N., Jørgensen, P. T., Vogel, S., Wengel, J., Høilund-Carlsen, P. F. & Mollenhauer, J., 27. Jun 2016.

In Vivo Evaluation of a Bombesin Analogue Labeled with Ga-68 and Co-55/57

Dam, J. H., Olsen, B. B., Baun, C., Høilund-Carlsen, P. F. & Thisgaard, H., Jun 2016, In: Molecular Imaging and Biology. 18, 3, p. 368-376

Highly Effective Auger-Electron Therapy in an Orthotopic Glioblastoma Xenograft Model using Convection-Enhanced Delivery

Thisgaard, H., Halle, B., Aaberg-Jessen, C., Olsen, B. B., Nautrup Therkelsen, A. S., Dam, J. H., Langkjær, N., Munthe, S., Nægren, K., Høilund-Carlsen, P. F. & Kristensen, B. W., 1. Jan 2016, In: Theranostics. 6, 12, p. 2278-2291

18F-fluorodeoxymannose (FDM) is a potential new tracer for inflammatory bowel disease

Soltan, S. R., Hess, S., Olsen, B. B., Baun, C., Langkjær, N. & Høilund-Carlsen, P. F., 2016, In: European Journal of Nuclear Medicine and Molecular Imaging. 43, suppl. 1, p. S449 1 p., EP585.

18F-Fluorodeoxymannose (FDM) is a Potential New Tracer for Inflammatory Bowel Disease

Christiansen, S. R., Hess, S., Olsen, B. B., Baun, C., Langkjær, N. & Høilund-Carlsen, P. F., 2016.

Biological mechanisms of FDG uptake in nonsmall cell lung cancer

Christlieb, S. B., Olsen, B. B., Antonsen Segtnan, E., Gerke, O., Olsen, K. E. & Høilund-Carlsen, P. F., 2016, In: European Journal of Nuclear Medicine and Molecular Imaging. 43, suppl. 1, p. S479 1 p., EP671.

Radiation-resistant cancer stem cells are sensitive to Auger-electron emission

Olsen, B. B., Høilund-Carlsen, P. F. & Thisgaard, H., 2016, In: European Journal of Nuclear Medicine and Molecular Imaging. 43, suppl. 1, p. S480 1 p., EP674.

Relationship between somatostatin receptor expression, DNA damage and cell survival in cancer cells incubated with a cobalt-labeled octreotide analogue

Olsen, B. B., Dam, J. H., Müller, C., Mollenhauer, J., Høilund-Carlsen, P. F. & Thisgaard, H., 29. May 2015.

Inverse correlation between hexokinase activity and glucose-6-phosphatase activity in ovarian cancer

Olsen, B. B., Vilstrup, M. H., Johnsen, I. B. G., Neumann, G., Alavi, A. & Høilund-Carlsen, P. F., 2015, In: European Journal of Nuclear Medicine and Molecular Imaging. 42, 1 Supplement, p. 456-457 1 p., P241.

Inverse correlation between hexokinase activity and glucose-6-phosphatase activity in ovarian cancer

Olsen, B. B., Vilstrup, M. H., Johnsen, I. B. G., Neumann, G., Alavi, A. & Høilund-Carlsen, P. F., 2015.

Novel treatment strategy for glioblastomas using Auger-electron therapy and concomitant chemotherapy: in vitro studies

Therkelsen, A., Olsen, B. B., Halle, B., Høilund-Carlsen, P. F. & Thisgaard, H., 2015, In: European Journal of Nuclear Medicine and Molecular Imaging. 42, 1 Supplement, p. 113 1 p., OP275.

Radiation-induced media-transferred bystander effect in breast cancer cells

Madsen, K. L., Høilund-Carlsen, P. F. & Olsen, B. B., 2015, In: European Journal of Nuclear Medicine and Molecular Imaging. 42, 1 Supplement, p. 162 1 p., OP390.

The use of radiocobalt as a label improves PET imaging of EGFR using DOTA-conjugated affibody molecules

Garousi, J., Anderson, K., Dam, J. H., Olsen, B. B., Orlova, A., Buijs, J., Ståhl, S., Thisgaard, H. & Tolmachev, V., 2015, In: European Journal of Nuclear Medicine and Molecular Imaging. 42, 1 Supplement, p. 244 1 p., OP582.

In Vivo Evaluation of a Bombesin Analogue Labelled with ^{68}Ga and $^{55/57}\text{Co}$

Dam, J. H., Olsen, B. B., Baun, C., Høilund-Carlsen, P. F. & Thisgaard, H., 18. Oct 2014, In: European Journal of Nuclear Medicine and Molecular Imaging. 41, 2. Supplement, p. S251 1 p., OP414.

Evaluation of Cobalt-Labeled Octreotide Analogs for Molecular Imaging and Auger Electron-Based Radionuclide Therapy

Thisgaard, H., Olsen, B. B., Dam, J. H., Bollen, P., Mollenhauer, J. & Høilund-Carlsen, P. F., 1. Aug 2014, In: Journal of Nuclear Medicine. 55, 8, p. 1311-1316

The protein kinase CK2(Andante) holoenzyme structure supports proposed models of autoregulation and trans-autophosphorylation

Schnitzler, A., Olsen, B. B., Issinger, O-G. & Niefind, K., 1. May 2014, In: Journal of Molecular Biology. 426, 9, p. 1871-1882

Convection-enhanced delivery of the Auger-electron-emitter I-125-UdR: A highly efficient therapy in an Orthotopic Glioblastoma Xenograft Model

Halle, B., Thisgaard, H., Aaberg-Jessen, C., Olsen, B. B., Dam, J. H., Langkjaer, N., Munthe, S., Någren, K., Hoilund-Carlsen, P. F. & Kristensen, B. W., 2014, In: Neuro-Oncology. 16, p. 1

The basic principles of FDG-PET/CT imaging

Basu, S., Hess, S., Braad, P-E., Olsen, B. B., Inglev, S. & Høilund-Carlsen, P. F., 2014, In: P E T Clinics. 9, 4, p. 355-370

Biological evaluation of cobalt-labeled octreotide analogues; Novel compounds for PET imaging and Auger-electron-based radionuclide therapy

Thisgaard, H., Olsen, B. B., Dam, J. H. & Høilund-Carlsen, P. F., May 2013, In: Journal of Labelled Compounds and Radiopharmaceuticals. 56, S1, p. S448 1 p.

Characterization of ATM and DNA-PK wild-type and mutant cell lines upon DSB induction in the presence and absence of CK2 inhibitors

Olsen, B. B., Fritz, G. & Issinger, O-G., 2012, In: International Journal of Oncology. 40, 2, p. 592-598

Down-regulation of protein kinase CK2 induces autophagic cell death through modulation of mTOR and MAPK signaling pathways in human glioblastoma cells

Olsen, B. B., Svenstrup, T. H. & Guerra, B., 2012, In: International Journal of Oncology. 41, p. 1967-1976

Protein kinase CK2 localizes to sites of DNA double-strand break regulating the cellular response to DNA damage

Olsen, B. B., Wang, S-Y., Svenstrup, T. H., Chen, B. P. C. & Guerra, B., 2012, In: B M C Molecular Biology. 13, p. 7-19

Interaction between CK2 α and CK2 β , the Subunits of Protein Kinase CK2: Thermodynamic Contributions of Key Residues on the CK2 α Surface

Raaf, J., Bischoff, N., Kloppfleisch, K., Brunstein, E., Olsen, B. B., Vilck, G., Litchfield, D., Issinger, O-G. & Niefind, K., 1. Feb 2011, In: Biochemistry. 50, 4, p. 512-22 11 p.

Enzymatic activity with an incomplete catalytic spine: insights from a comparative structural analysis of human CK2 α and its paralogous isoform CK2 α'

Bischoff, N., Raaf, J., Olsen, B. B., Bretner, M., Issinger, O-G. & Niefind, K., 2011, In: Molecular and Cellular Biochemistry. 356, 1-2, p. 57-65

Lack of the catalytic subunit of DNA-dependent protein kinase (DNA-PKcs) is accompanied by increased CK2 α' levels

Olsen, B. B., Fischer, U., Rasmussen, T. D. L., Montenarh, M., Meese, E., Fritz, G. & Issinger, O-G., 2011, In: Molecular and Cellular Biochemistry. 356, 1-2, p. 139-147

Role of polyamines in determining the cellular response to chemotherapeutic agents: modulation of protein kinase CK2 expression and activity

Kreutzer, J. N., Olsen, B. B., Lech, K., Issinger, O-G. & Guerra, B., 2011, In: Molecular and Cellular Biochemistry. 356, 1-2, p. 149-158

Structure of the Human Protein Kinase CK2 Catalytic Subunit CK2 α ' and Interaction Thermodynamics with the Regulatory Subunit CK2 β

Bischoff, N., Olsen, B. B., Raaf, J., Bretner, M., Issinger, O-G. & Niefind, K., 2011, In: Journal of Molecular Biology. 407, 1, p. 1-12

Mapping of the interaction sites between Wee1 kinase and the regulatory β -subunit of protein kinase CK2

Olsen, B. B., Kreutzer, J. N., Watanabe, N., Holm, T. & Guerra, B., 2010, In: International Journal of Oncology. 36, p. 1175-1182

Regulation of DNA-dependent protein kinase by protein kinase CK2 in human glioblastoma cells

Olsen, B. B., Issinger, O-G. & Guerra, B., 2010, In: Oncogene. 29(45), p. 6016-26

Structural basis of the constitutive activity of protein kinase CK2

Olsen, B. B., Guerra, B., Niefind, K. & Issinger, O-G., 2010, *Methods in Enzymology*. Conn, P. M. (ed.). Academic Press, Vol. 484. p. 515-529

Selectivity analysis of protein kinase CK2 inhibitors DMAT, TBB and resorufin in cisplatin-induced stress responses

Fritz, G., Issinger, O-G. & Olsen, B. B., 1. Nov 2009, In: International Journal of Oncology. 35, 5, p. 1151-1157 6 p.

Resorufin: a lead for a new protein kinase CK2 inhibitor

Sandholt, I. S., Olsen, B. B., Guerra, B. & Issinger, O-G., 1. Apr 2009, In: Anti-Cancer Drugs. 20, 4, p. 238-248 10 p.

Exploring the intramolecular phosphorylation sites in human Chk2

Olsen, B. B., Larsen, M. R., Boldyreff, B., Niefind, K. & Issinger, O-G., 10. Nov 2008, In: Mutation Research - Fundamental and Molecular Mechanisms of Mutagenesis. 646, 1-2, p. 50-59 9 p.

Ability of CK2 β to selectively regulate cellular protein kinases

Olsen, B. & Guerra, B., 2008, In: Molecular and Cellular Biochemistry. 316, 1-2, p. 115-126

Biochemical characterization of CK2 α and α ' paralogues and their derived holoenzymes: evidence for the existence of a heterotrimeric CK2 α '-holoenzyme forming trimeric complexes.

Olsen, B., Rasmussen, T., Niefind, K. & Issinger, O-G., 2008, In: Molecular and Cellular Biochemistry. 316, 1-2, p. 37-47

The regulatory beta-subunit of protein kinase CK2 regulates cell-cycle progression at the onset of mitosis

Yde, C. W., Olsen, B. B., Meek, D., Watanabe, N. & Guerra, B., 2008, In: Oncogene. 27, 37, p. 4986-4997

UV light blocks EGFR signalling in human cancer cell lines

Olsen, B. B., Neves-Petersen, M. T., Klitgaard, S., Issinger, O-G. & Petersen, S. B., 1. Jan 2007, In: International Journal of Oncology. 30, 1, p. 181-185 4 p.

Emodin negatively affects the phosphoinositide 3-kinase/AKT signalling pathway: a study on its mechanism of action

Olsen, B. B., Bjørling-Poulsen, M. & Guerra, B., 2007, In: International Journal of Biochemistry & Cell Biology. 39, 1, p. 227-237 10 p.

Inter- and Supramolecular Interactions of Protein Kinase CK2 and their Relevance for Genome Integrity

Olsen, B. B., Niefind, K. & Issinger, O-G., 2007, *Genome Dynamics & Stability: Genome Integrity*. Lankenau, D-H. (ed.). 1 ed. Springer Science+Business Media, Vol. 1. p. 315-342 28 p.

BID, an interaction partner of protein kinase CK2 α

Olsen, B. B., Petersen, J. & Issinger, O-G., 2006, In: Biological Chemistry. 387, 4, p. 441-449

Purification and characterization of the CK2alpha'-based holoenzyme, an isozyme of CK2alpha: A comparative analysis
Olsen, B. B., Boldyreff, B., Niefind, K. & Issinger, O-G., 2006, In: Protein Expression and Purification. 47, 2, p. 651-661

Protein kinase CK2 phosphorylates the Fas-associated factor FAF1 in vivo and influences its transport into the nucleus.
Olsen, B. B., Jessen, V., Højrup, P., Issinger, O-G. & Boldyreff, B., 10. Jul 2003, In: FEBS Letters. 546, 2-3, p. 218-224 p.

Disruption of the regulatory beta subunit of protein kinase CK2 in mice leads to a cell-autonomous defect and early embryonic lethality

Buchou, T., Vernet, M., Blond, O., Jensen, H. H., Pointu, H., Olsen, B. B., Cochet, C., Issinger, O-G. & Boldyreff, B., 2003, In: Molecular and Cellular Biology. 23, 3, p. 908-915 7 p.

Activities

Effects of insulin and blood glucose on FDG-uptake in a mouse lung tumour model

Christina Baun (Author), Anne Lerberg Nielsen (Co-author), Oke Gerke (Co-author), Helge Thisgaard (Co-author), Kirsten Falch Braas (Co-author), Poul Flemming Højlund-Carlsen (Co-author) & Birgitte Brinkmann Olsen (Co-author)
13. Oct 2018 → 17. Oct 2018

2nd Odense Spring Meeting

Birgitte Brinkmann Olsen (Speaker)
12. Apr 2016

EANM

Birgitte Brinkmann Olsen (Participant)
10. Oct 2015 → 14. Oct 2015

15th international congress on radiation research

Birgitte Brinkmann Olsen (Participant)
25. May 2015 → 29. May 2015

Protein Kinase CK2 – et centralt protein i kræft

Birgitte Brinkmann Olsen (Lecturer)
3. Nov 2010

1st European Duolink User Meeting

Birgitte Brinkmann Olsen (Participant)
18. Oct 2010 → 19. Oct 2010

Lack of the Catalytic Subunit of DNA-Dependent Protein Kinase (DNA-PKc) is accompanied by increased CK2alpha' levels

Birgitte Brinkmann Olsen (Lecturer)
7. Sep 2010 → 10. Sep 2010

23. Årsmøde i Dansk Selskab for Cancerforskning

Birgitte Brinkmann Olsen (Participant)
7. May 2010

6th international conference on Inhibitors of Protein kinases

Birgitte Brinkmann Olsen (Participant)
27. Jun 2009 → 1. Jul 2009