



## PhD Lenka Besse

Medizinische Onkologie und Hämatologie · Dept. I

### Contact

PhD Lenka Besse  
Rorschacherstrasse 95  
9007 St. Gallen  
Switzerland

T +41 71 494 3508  
Lenka.Besse@kssg.ch

### Orcid

0000-0003-4739-7618

### Units

Medizinische Onkologie und Hämatologie

## Publications (20)

Besse A, Sedlarikova L, Büchler L, Kraus M, Yang C, Strakova N, Soucek K, Navratil J, Svoboda M, Welm A, Jörger M, Driessen C, Besse L. HIV-protease inhibitors potentiate the activity of carfilzomib in triple-negative breast cancer. *Br J Cancer* 2024

Purde M, Cupovic J, Palmowski Y, Makky A, Schmidt S, Rochwarger A, Hartmann F, Stemeseder F, Lercher A, Abdou M, Bomze D, Besse L, Berner F, Tüting T, Hölzel M, Bergthaler A, Kochanek S, Ludewig B, Lauterbach H, Orlinger K, Bald T, Schietinger A, Schürch C, Ring S, Flatz L. A replicating LCMV-based vaccine for the treatment of solid tumors. *Mol Ther* 2023; 32:426-439.

Bandini C, Mereu E, Paradzik T, Labrador M, Maccagno M, Cumerlato M, Oreglia F, Prever L, Manicardi V, Taiana E, Ronchetti D, D'Agostino M, Gay F, Larocca A, Besse L, Merlo G, Hirsch E, Ciarrocchi A, Inghirami G, Neri A, Piva R. Lysin (K)-specific demethylase 1 inhibition enhances proteasome inhibitor response and overcomes drug resistance in multiple myeloma. *Exp Hematol Oncol* 2023; 12:71.

Besse L, Kraus M, Besse A, Driessen C, Tarantino I. The cytotoxic activity of carfilzomib together with nelfinavir is superior to the bortezomib/nelfinavir combination in non-small cell lung carcinoma. *Sci Rep* 2023; 13:4411.

Ferguson I, Patiño-Escobar B, Tuomivaara S, Lin Y, Nix M, Leung K, Kasap C, Ramos E, Nieves Vasquez W, Talbot A, Hale M, Naik A, Kishishita A, Choudhry P, Lopez-Girona A, Miao W, Wong S, Wolf J, Martin T, Shah N, Vandenberg S, Prakash S, Besse L, Driessen C, Posey A, Mullins R, Eyquem J, Wells J, Wiita A. The surfaceome of multiple myeloma cells suggests potential immunotherapeutic strategies and protein markers of drug resistance. *Nat Commun* 2022; 13:4121.

Schwestermann J, Besse A, Driessen C, Besse L. Contribution of the Tumor Microenvironment to Metabolic Changes Triggering Resistance of Multiple Myeloma to Proteasome Inhibitors. *Front Oncol* 2022; 12:899272.

Bolomsky A, Caers J, Hübl W, Schreder M, Zojer N, Driessen C, Tang J, Besse L, Heckman C, Kubicek S, Hannich J, Miettinen J, Malyutina A, Besse A, Huber J, Fellingner S, Breid H, Parsons A, Klavins K, Ludwig H. Heterogeneous modulation of Bcl-2 family members and drug efflux mediate MCL-1 inhibitor resistance in multiple myeloma. *Blood Adv* 2021; 5:4125-4139.

Besse L, Besse A, Kraus M, Maurits E, Overkleeft H, Bornhauser B, Bourquin J, Driessen C. High Immunoproteasome Activity and sXBP1 in Pediatric Precursor B-ALL Predicts Sensitivity towards Proteasome Inhibitors. *Cells* 2021; 10

Besse L, Pilon M, Farhan H, Vulpe C, Overkleeft H, Driessen C, Ståhlman M, Huber J, Bolomsky A, Ludwig H, Hannich J, Loguinov A, Everts B, Berkers C, Besse A, Borén J, Florea B, Sathianathan M, Stolze S, Sobh A, Zaal E, van der Ham A, Ruiz M, Phuyal S, Büchler L. Treatment with HIV-Protease Inhibitor Nelfinavir Identifies Membrane Lipid Composition and Fluidity as a Therapeutic Target in Advanced Multiple Myeloma. *Cancer Res* 2021; 81:4581-4593.

Byrgazov K, Besse A, Kraus M, Slipicevic A, Lehmann F, Driessen C, Besse L. Novel Peptide-drug Conjugate Melflufen Efficiently Eradicates Bortezomib-resistant Multiple Myeloma Cells Including Tumor-initiating Myeloma Progenitor Cells. *Hemasphere* 2021; 5:e602.

Byrgazov K, Kraus M, Besse A, Slipicevic A, Lehmann F, Driessen C, Besse L. Up-regulation of multidrug resistance protein MDR1/ABCB1 in carfilzomib-resistant multiple myeloma differentially affects efficacy of anti-myeloma drugs. *Leuk Res* 2020; 101:106499.

Brenig R, Antoniadou C, Wendon J, Heim M, Ludwig B, Weston C, Duong F, Semela D, Brand S, Boldanova T, Künzler-Heule P, Cupovic J, Besse L, Pérez Shibayama C, Singanayagam A, Geng A, Triantafyllou E, Pop O, Bernsmeier C. Expression of AXL receptor tyrosine kinase relates to monocyte dysfunction and severity of cirrhosis. *Life Sci Alliance* 2019; 3

Vrabel D, Sevcikova S, Pour L, Stork M, Sandecka V, Jelinek T, Plonkova H, Jarkovsky J, Brožová L, Kubackova V, Almasi M, Bezdekova R, Rihova L, Besse L, Sedlarikova L, Hájek R. Dynamics of tumor-specific cfDNA in response to therapy in multiple myeloma patients. *Eur J Haematol* 2019

Hitz F, Driessen C, Mey U, Samaras P, Vilei S, Stüdeli S, Rondeau S, Seipel K, Novak U, Silzle T, Besse L, Hess D, Pabst T, Kraus M, Swiss Group for Clinical Cancer Research SAKK. Nelfinavir and lenalidomide/dexamethasone in patients with lenalidomide-refractory multiple myeloma. A phase I/II Trial (SAKK 39/10). *Blood Cancer J* 2019; 9:70.

Driessen C, Pabst T, Hitz F, Hawle H, Rondeau S, Berset C, Besse A, Besse L, Ribi K, Samaras P, Mey U, Rüfer A, Mach N, Betticher D, Cantoni N, Novak U, Müller R, Zander T. Promising activity of nelfinavir-bortezomib-dexamethasone (NeVd) in proteasome inhibitor-refractory multiple myeloma. *Blood* 2018

Krupkova O, Cambria E, Besse L, Besse A, Bowles R, Wuertz-Kozak K. The potential of CRISPR/Cas9 genome editing for the study and treatment of intervertebral disc pathologies. *JOR Spine* 2018; 1:e1003.

Abt D, Driessen C, Engeler D, Schmid H, Slaby O, Vodinska M, Silzle T, Bader J, Kraus M, Sedlarikova L, Besse A, Besse L. Improving the efficacy of proteasome inhibitors in the treatment of renal cell carcinoma by combination with the human immunodeficiency virus (HIV)-protease inhibitors lopinavir or nelfinavir. *BJU Int* 2017

Besse L, Kraus M, Besse A, Bader J, Silzle T, Mehring T, Driessen C. The first-in-class alkylating HDAC inhibitor EDO-S101 is highly synergistic with proteasome inhibition against multiple myeloma through activation of multiple pathways. *Blood Cancer J* 2017; 7:e589.

Besse A, Besse L, Overkleeft H, Bader J, Kraus M, Morgan G, Weinhold N, Rasche L, Stolze S, Driessen C. Carfilzomib resistance due to ABCB1/MDR1 overexpression is overcome by nelfinavir and lopinavir in multiple myeloma. *Leukemia* 2017; 32:391-401.

Kraus J, Kraus M, Liu N, Besse L, Bader J, Geurink P, de Bruin G, Kisselev A, Overkleeft H, Driessen C. The novel  $\beta$ 2-selective proteasome inhibitor LU-102 decreases phosphorylation of I kappa B and induces highly synergistic cytotoxicity in combination with ibrutinib in multiple myeloma cells. *Cancer Chemother Pharmacol* 2015; 76:383-96.

## Projects (12)

### **Targeting des Immunoproteasoms in vivo**

*Fundamental Research - Aug 1, 2023 - Dec 31, 2025*

*Completed*

### **Genetic contributors of multiple myeloma cells involved in their homing and escape from T-cell recognition**

*Fundamental Research - Jul 1, 2022 - Jun 30, 2023*

*Automatically Closed*

### **ALK-Inhibitoren als potentielle Therapie bei Proteasom-Inhibitor-resistentem Multiplen Myelom**

*Fundamental Research - Oct 1, 2021 - Sep 30, 2023*

*Automatically Closed*

### **Immunoproteasome activity as a predictive marker and therapeutic target in hematological malignancies**

*Fundamental Research - Jul 1, 2021 - Dec 31, 2021*

*Automatically Closed*

### **Towards identification of novel therapeutic targets: Assessment of proteasome-related alterations in MM patients' datasets**

*Fundamental Research - Jan 1, 2021 - Dec 31, 2021*

*Automatically Closed*

### **The molecular landscape of proteasome inhibitor resistance of multiple myeloma in vivo**

*Fundamental Research - Jul 1, 2020 - Dec 31, 2023*

*Automatically Closed*

### **Revealing molecular basis of cardiotoxicity of carfilzomib towards its safer use in the patients with multiple myeloma**

*Fundamental Research - Mar 1, 2020 - Feb 28, 2021*

*Automatically Closed*

### **The „seed and soil“-based pathogenesis of proteasome inhibitor resistance in multiple myeloma**

*Fundamental Research - Jan 1, 2019 - Dec 31, 2019*

*Automatically Closed*

### **Identifying and targeting the "Achilles' heel" in proteasome inhibitor-resistant multiple myeloma**

*Fundamental Research - Oct 1, 2018 - Dec 31, 2021*

*Automatically Closed*

**Preclinical investigation of cardiotoxicity as a clinically important side effect of proteasome inhibitor-based therapy**

*Fundamental Research - Jul 1, 2017 - Jun 30, 2018*

*Automatically Closed*

**HIV-Proteaseinhibitoren als Basis für Krebstherapie: Verständnis des Mechanismus, Identifikation der Targets, Entwicklung wirksamerer Substanzen**

*Fundamental Research - Nov 1, 2016 - Oct 31, 2018*

*Automatically Closed*

**Proteasominhibitor-resistentes Multiples Myelom: Biologie und Therapieoptionen**

*Fundamental Research - Jan 5, 2015 - Dec 31, 2015*

*Automatically Closed*