

# Curriculum vitae

## Personal data

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Name: Gerda Egger

Maiden Name: Gerda Lagger

Date of Birth: 03.03.1970

Nationality: Austria

Marital status: married, 2 children (born 2006 and 2008)

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## Main areas of research

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My research interest lies in the field of epigenetics and cancer. Using mouse models, we are trying to understand how epigenetic aberrations including DNA methylation and histone acetylation are generated and how they can be reversed and remodeled. We have employed genome-scale analyses to define targets of differential DNA methylation in primary tumors to define epigenetic biomarkers and to discover epigenetic drivers of tumorigenesis. We are closely collaborating with clinicians to explore potential epigenetic biomarkers in different disease settings to develop minimal-invasive biomarkers for tumor diagnosis in liquid biopsies.

## Academic Career

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2016	Deputy Director and Key Researcher, Ludwig Boltzmann Institute for Applied Diagnostics (LBI AD)
2014-present	Associate Professor, Clinical Institute of Pathology, Medical University of Vienna
2012	Habilitation in “Tumor Biology” at the Medical University of Vienna
2011-2014	Assistant Professor, Clinical Institute of Pathology, Medical University of Vienna
2009-present	Lector for Epigenetics at the University of Vienna
2009-2011	Senior Postdoc, Clinical Institute of Pathology, Medical University of Vienna
2008	Postdoctoral Fellow with Lukas Kenner, Clinical Institute of Pathology, Medical University of Vienna

- 2002-2007 Postdoctoral Fellow with Peter Jones, Norris Comprehensive Cancer Center and Hospital, University of Southern California, Los Angeles
- 1998-2001 Doctoral thesis, Department of Medical Biochemistry, University of Vienna, group Christian Seiser
- 1996-1997 Master Thesis, Department of Medical Biochemistry, University of Vienna, group Christian Seiser

## Publications

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(according to google scholar: 9403 citations, H-index: 34)

42 peer-reviewed original publications in scientific journals

7 reviews

3 editorials

1 book (editor and contribution)

## Fellowships/grants

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- Max Kade Postdoc Fellowship, ÖAW (2002)
- Elise Richter Postdoc Fellowship (2009-2011)
- Marie Curie International Reintegration Grant (FP7, EU). (2009-2012)
- Anniversary Fund of the Austrian National Bank (ONB) (2009-2012)
- Anniversary Fund of the Austrian National Bank (ONB) (2014-2016)
- Stand-alone project (FWF), Start: 01.02.2015
- Herzfelder'sche Familienstiftung, Start: 01.04.2015
- Horizon 2020 Marie Skłodowska Curie-ITN, Start: 01.09.2015

## Awards

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- Annual Meeting of the Austrian Society of Biochemistry, Innsbruck/ Austria, September 25-27. 2000, award for the best oral presentation.
- Amersham Biosciences Award, 2002
- Otto Kraupp Award for medical „Habilitation“ in Austria in 2012 (2<sup>nd</sup> place)

## Conferences

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- Cancer Epigenetics: DNA Methylation and Chromatin Remodeling, Cancer Symposium, Seoul National University College of Medicine, Korea, September 26, 2003 (Invited Talk)

- Workshop on Epigenetics, Society and Gender, University of Vienna, June 22, 2012. Keynote lecture.
- International Workshop on Epigenetics and microRNAs in Cancer, Keio University, Tokyo, Japan March 11, 2016. (Invited Talk)
- Posters at international meetings related to epigenetics and cancer research including Gordon Research Conferences, AACR meetings, Wellcome Trust Scientific meetings, Keystone Symposia

### **Other relevant activities**

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- Review activities for Biochimie, PLoS One, Clinical Epigenetics, Biochemistry and Cell Biology, Recent Patents on anti-cancer drug discovery
- Project reviews for the Dutch Science Fund (NWO), the Association for International Cancer Research (AICR), the INSERM and the Austrian Academy of Sciences (ÖAW).

### **Teaching responsibilities**

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- Supervision of master and PhD students
- Seminars related to tumor biology and epigenetics for MD and PhD students
- Lectures and courses on Epigenetics at the University of Vienna
- Postgraduate courses on Epigenetics for physicians and teachers

### **International cooperation partners**

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- Suzanne Turner, University of Cambridge, UK
- Paola B Arimondo, CNRS-Pierre Fabre, Toulouse, France
- Zbynek Zdrahal, CEITEC, Central European Institute of Technology, Brno, Czech Republic
- ERIA- European Research Initiative of ALK-related malignancies

## Publications

### *Ten most important publications*

1. Hassler RM, Pulverer W, Lakshminarasimhan R, Redl E, Hacker J, Garland GD, Merkel O, Schiefer AI, Simonitsch-Klupp I, Kenner L, Weisenberg DJ, Weinhaeusel A, Turner SD and **Egger G**. Insights into the pathogenesis of Anaplastic Large Cell Lymphoma through genome-wide DNA methylation profiling. *Cell reports*, 2016 Oct 4;17(2):596-608.
2. Grabner B, Schramek D, Mueller KM, Moll H, Svinka J, Hoffmann T, Bauer E, Blaas L, Hruschka N, Zboray K, Stiedl P, H, Bogner E, Gruber W, Mohr T, Zwick RH, Kenner L, Poli V, Aberger F, Stoiber D, **Egger G**, Esterbauer H, Zuber J, Moriggl R, Eferl R, Györfy B, Penninger J, Popper H, Casanova E. Disruption of STAT3 signaling promotes KRAS induced lung tumorigenesis, 2015, *Nature Commun.* 2015 Mar 3;6:6285
3. Laimer D, Dolznig H, Kollmann K, Vesely PW, Schleder M, Merkel O, Schiefer AI, Hassler MR, Heider S, Amenitsch L, Thallinger C, Staber PB, Simonitsch-Klupp I, Artaker M, Lagger S, Turner SD, Pileri S, Piccaluga PP, Valent P, Messana K, Landra I, Weichhart T, Knapp S, Shehata M, Todaro M, Sexl V, Höfler G, Piva R, Medico E, Ruggeri BA, Cheng M, Eferl R, **Egger G**, Penninger JM, Jaeger U, Moriggl R, Inghirami G, Kenner L. PDGFR blockade is a rational and effective therapy for NPM-ALK-driven lymphomas. *Nat Med.* 2012 Nov;18(11):1699-704.
4. Hassler MR, Klisaroska A, Kollmann K, Steiner I, Bilban M, Schiefer AI, Sexl V, **Egger G**. Antineoplastic activity of the DNA methyltransferase inhibitor 5-aza-2'-deoxycytidine in anaplastic large cell lymphoma. *Biochimie.* 2012 Nov;94(11):2297-307.
5. Gal-Yam EN, **Egger G** \*, Iniguez L, Holster H, Einarsson S, Zhang X, Lin JC, Liang G, Jones PA, Tanay A. Frequent switching of Polycomb repressive marks and DNA hypermethylation in the PC3 prostate cancer cell line. *Proc Natl Acad Sci U S A.* 2008 Sep 2; 105 (35) :12979-84. PubMed PMID:18753622; PubMed Central PMCID: PMC2529074. \* equal contribution.
6. **Egger G**, Aparicio AM, Escobar SG, Jones PA. Inhibition of histone deacetylation does not block resilencing of p16 after 5-aza-2'-deoxycytidine treatment. *Cancer Res.* 2007 Jan 1; 67 (1) :346-53. PubMed PMID:17210717.
7. **Egger G**, Jeong S, Escobar SG, Cortez CC, Li TW, Saito Y, Yoo CB, Jones PA, Liang G. Identification of DNMT1 (DNA methyltransferase 1) hypomorphs in somatic knockouts suggests an essential role for DNMT1 in cell survival. *Proc Natl Acad Sci U S A.* 2006 Sep 19; 103 (38) :14080-5. PubMed PMID:16963560; PubMed Central PMCID: PMC1599915.
8. Saito Y, Liang G, **Egger G** \*, Friedman JM, Chuang JC, Coetzee GA, Jones PA. Specific activation of microRNA-127 with downregulation of the proto-oncogene BCL6 by chromatin-modifying drugs in human cancer cells. *Cancer Cell.* 2006 Jun; 9 (6) :435-43. PubMed PMID:16766263. \* equal contribution.
9. **Lagger G**, Doetzlhofer A, Schuettengruber B, Haidweger E, Simboeck E, Tischler J, Chiocca S, Suske G, Rotheneder H, Wintersberger E, Seiser C. The tumor suppressor p53 and histone deacetylase 1 are antagonistic regulators of the cyclin-dependent kinase inhibitor p21/WAF1/CIP1 gene. *Mol Cell Biol.* 2003 Apr; 23 (8) :2669-79. PubMed PMID:12665570; PubMed Central PMCID: PMC152549.
10. **Lagger G**, O'Carroll D, Rembold M, Khier H, Tischler J, Weitzer G, Schuettengruber B, Hauser C, Brunmeir R, Jenuwein T, Seiser C. Essential function of histone deacetylase 1 in proliferation control and CDK inhibitor repression. *EMBO J.* 2002 Jun 3; 21 (11) :2672-81. PubMed PMID:12032080; PubMed Central PMCID: PMC126040.

## Publications 2012-2017

1. **Egger G**, Turner SD. New avenues for targeted therapies and biomarkers in anaplastic large cell lymphoma. *Epigenomics*. 2017 Feb;9(2):97-100.
2. Lemberger UJ, Fuchs CD, Karer M, Haas S, Stojakovic T, Schöfer C, Marschall HU, Wrba F, Taketo MM, **Egger G**, Trauner M, Österreicher CH. Hepatocyte specific expression of an oncogenic variant of  $\beta$ -catenin results in cholestatic liver disease. *Oncotarget*. 2016 Dec 27;7(52):86985-86998.
3. Hassler RM, Pulverer W, Lakshminarasimhan R, Redl E, Hacker J, Garland GD, Merkel O, Schiefer AI, Simonitsch-Klupp I, Kenner L, Weisenberg DJ, Weinhaeusel A, Turner SD and **Egger G**. Insights into the pathogenesis of Anaplastic Large Cell Lymphoma through genome-wide DNA methylation profiling. *Cell reports*, 2016 Oct 4;17(2):596-608.
4. Exner R, Pulverer W, Diem M, Spaller L, Woltering L, Schreiber M, Wolf B, Sonntagbauer M, Schröder F, Stift J, Wrba F, Bergmann M, Weinhäusel A, **Egger G**. Potential of DNA methylation in rectal cancer as diagnostic and prognostic biomarkers. *Br J Cancer*. 2015 Sep 29;113(7):1035-45.
5. Pencik J, Schleder M, Gruber W, Unger C, Walker SM, Chalaris A, Marié IJ, Hassler MR, Javaheri T, Aksoy O, Blayney JK, Prutsch N, Skucha A, Herac M, Krämer OH, Mazal P, Grebien F, **Egger G**, Poli V, Mikulits W, Eferl R, Esterbauer H, Kennedy R, Fend F, Scharpf M, Braun M, Perner S, Levy DE, Malcolm T, Turner SD, Haitel A, Susani M, Moazzami A, Rose-John S, Aberger F, Merkel O, Moriggl R, Culig Z, Dolznig H, Kenner L. STAT3 regulated ARF expression suppresses prostate cancer metastasis. *Nat Commun*. 2015 Jul 22;6:7736.
6. Schiefer AI, Vesely P, Hassler MR, Egger G, Kenner L. The role of AP-1 and epigenetics in ALCL. *Front Biosci* (Schol Ed). 2015 Jun 1;7:226-35.
7. Merkel O, Hamacher F, Griessl R, Grabner L, Schiefer AI, Prutsch N, Baer C, **Egger G**, Schleder M, Krenn PW, Hartmann TN, Simonitsch-Klupp I, Plass C, Staber PB, Moriggl R, Turner SD, Greil R, Kenner L. Oncogenic role of miR-155 in anaplastic large cell lymphoma lacking the t(2;5) translocation. *J Pathol*. 2015 Mar 26.
8. Grabner B, Schramek D, Mueller KM, Moll H, Svinka J, Hoffmann T, Bauer E, Blaas L, Hruschka N, Zboray K, Stiedl P, H, Bogner E, Gruber W, Mohr T, Zwick RH, Kenner L, Poli V, Aberger F, Stoiber D, **Egger G**, Esterbauer H, Zuber J, Moriggl R, Eferl R, Györfy B, Penninger J, Popper H, Casanova E. Disruption of STAT3 signaling promotes KRAS induced lung tumorigenesis, 2015, *Nature Commun*. 2015 Mar 3;6:6285
9. Birner P, **Egger G**, Merkel O, Kenner L. Loss is nothing else but change. 2015, *Cell Death Differ*. 2015 Apr;22(4):522-3.
10. Noehammer C, Pulverer W, Hassler MR, Hofner M, Wielscher M, Vierlinger K, Liloglou T, McCarthy D, Jensen TJ, Nygren A, Gohlke H, Trooskens G, Braspenning M, Van Criekinge W, **Egger G**, Weinhaeusel A. Strategies for validation and testing of DNA methylation biomarkers. *Epigenomics*. 2014 Dec;6(6):603-22.
11. Carlberg L, Scheibelreiter J, Hassler MR, Schloegelhofer M, Schmoeger M, Ludwig B, Kasper S, Aschauer H, **Egger G**, Schosser A. Brain-derived neurotrophic factor (BDNF)-epigenetic regulation in unipolar and bipolar affective disorder. *J Affect Disord*. 2014 Oct 15;168:399-406. doi: 10.1016/j.jad.2014.07.022. Epub 2014 Jul 19.
12. Wielscher M, Liou W, Pulverer W, Singer CF, Rappaport-Fuerhauser C, Kandioler D, **Egger G**, Weinhäusel A. Cytosine 5-Hydroxymethylation of the LZTS1 Gene is Reduced in Breast Cancer. *Transl Oncol*. 2013 Dec 1;6(6):715-21.

13. Hassler MR, Schiefer A, **Egger G**. Combating the epigenome: epigenetic drugs against non-Hodgkin's lymphoma. *Epigenomics*. 2013 Aug;5(4):397-415.
14. Höbaus J, Hummel DM, Thiem U, Fetahu IS, Aggarwal A, Müllauer L, Heller G, **Egger G**, Mesteri I, Baumgartner-Parzer S, Kallay E. Increased copy-number and not DNA hypomethylation causes overexpression of the candidate proto-oncogene CYP24A1 in colorectal cancer. *Int J Cancer*. 2013 Sep 15;133(6):1380-8.
15. Haemmerle M, Keller T, **Egger G**, Schachner H, Steiner CW, Stokic D, Neumayer C, Brown MK, Kerjaschki D, Hantusch B. Enhanced Lymph Vessel Density, Remodelling and Inflammation is Reflected by Gene Expression Signatures in Dermal Lymphatic Endothelial Cells in Type 2 Diabetes. *Diabetes*. 2013 Jul;62(7):2509-29.
16. Unger C, Popescu R, Giessrigl B, Laimer D, Heider S, Seelinger M, Diaz R, Wallnöfer B, **Egger G**, Hassler M, Knöfler M, Saleh L, Sahin E, Grusch M, Fritzer-Szekeres M, Dolznig H, Frisch R, Kenner L, Kopp B, Krupitza G. The dichloromethane extract of the ethnomedicinal plant *Neurolaena lobata* inhibits NPM/ALK expression which is causal for anaplastic large cell lymphomagenesis. *Int J Oncol*. 2013 Jan;42(1):338-48.
17. Laimer D, Dolznig H, Kollmann K, Vesely PW, Schlederer M, Merkel O, Schiefer AI, Hassler MR, Heider S, Amenitsch L, Thallinger C, Staber PB, Simonitsch-Klupp I, Artaker M, Lagger S, Turner SD, Pileri S, Piccaluga PP, Valent P, Messana K, Landra I, Weichhart T, Knapp S, Shehata M, Todaro M, Sexl V, Höfler G, Piva R, Medico E, Ruggeri BA, Cheng M, Eferl R, **Egger G**, Penninger JM, Jaeger U, Moriggl R, Inghirami G, Kenner L. PDGFR blockade is a rational and effective therapy for NPM-ALK-driven lymphomas. *Nat Med*. 2012 Nov;18(11):1699-704.
18. Arimondo PB, **Egger G**, Tost J. Epigenetics. *Biochimie*. 2012 Nov;94(11):2191-2.
19. Hassler MR, Klisaroska A, Kollmann K, Steiner I, Bilban M, Schiefer AI, Sexl V, **Egger G**. Antineoplastic activity of the DNA methyltransferase inhibitor 5-aza-2'-deoxycytidine in anaplastic large cell lymphoma. *Biochimie*. 2012 Nov;94(11):2297-307.
20. Hassler MR, **Egger G**. Epigenomics of cancer - emerging new concepts. *Biochimie*. 2012 Nov;94(11):2219-30.
21. **Egger G**, Wielscher M, Pulverer W, Kriegner A, Weinhäusel A. DNA methylation testing and marker validation using PCR: diagnostic applications. *Expert Rev Mol Diagn*. 2012 Jan;12(1):75-92.