



OTTO VON GUERICKE  
UNIVERSITÄT  
MAGDEBURG

MED

MEDIZINISCHE  
FAKULTÄT

# Forschungsbericht 2015

Institut für Humangenetik

# INSTITUT FÜR HUMANGENETIK

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## 1. Leitung

Prof. Dr. Martin Zenker

## 2. Hochschullehrer

PD Dr. Ilse Wieland

## 3. Forschungsprofil

Neurogenetik

- X-chromosomal erbliche geistige Retardierung
- Molekulargenetische Analyse neuromuskulärer Erkrankungen

Tumogenetik

- Zytogenetische und molekularzytogenetische Charakterisierung von Leukämien
- Genkartierung ausgewählter genetischer Syndrome
- Molekulargenetische Analyse der Ursache bei familiärer Spalthand-/Spaltfussfehlbildung

## 4. Kooperationen

- Universitätsmedizin Greifswald

## 5. Forschungsprojekte

**Projektleiter:** apl. Prof. Ilse Wieland

**Kooperationen:** Universitätskinderklinik; Universitätsmedizin Greifswald

**Förderer:** Industrie; 01.12.2014 - 01.12.2015

### Molekulargenetische Untersuchung somatischer Mosaike

Die Entstehung molekulargenetischer somatischer Mosaike ist ein bekannter Mechanismus bei der Tumorentstehung und Progression. Bei einer Reihe viel seltener auftretender Krankheitsbilder wurden somatische Mosaike zwar postuliert, jedoch wurde erst durch die Entwicklung neuer Technologien ein Nachweis der zugrunde liegenden Mutationen und Mechanismen ermöglicht. Im Rahmen dieses Projekts untersuchen wir bei Patienten des *German Registry for Congenital Hyperinsulinism* die molekulargenetischen Ursachen spezifisch der fokalen Form des kongenitalen Hyperinsulinismus.

## 6. Veröffentlichungen

### Begutachtete Zeitschriftenaufsätze

**Atik, Tahir; Karakoyun, Miray; Sukalo, Maja; Zenker, Martin; Ozkinay, Ferda; Aydogdu, Sema**

Two novel UBR1 gene mutations in a patient with Johanson Blizzard Syndrome: A mild phenotype without mental retardation

In: Gene: an international journal on genes, genomes and evolution. - Amsterdam: Elsevier, Bd. 570.2015, 1, S. 153-155;  
[Imp.fact.: 2,138]

**Bögershausen, Nina; Tsai, I-Chun; Pohl, Esther; Kiper, Pelin Özlem Simsek; Beleggia, Filippo; Percin, E. Ferda; Keupp, Katharina; Matchan, Angela; Milz, Esther; Alanay, Yasemin; Kayserili, Hülya; Liu, Yicheng; Banka, Siddharth; Kranz, Andrea; Zenker, Martin; Wieczorek, Dagmar; Elcioglu, Nursel; Prontera, Paolo; Lyonnet, Stanislas; Meitinger, Thomas; Stewart, A. Francis; Donnai, Dian; Strom, Tim M.; Boduroglu, Koray; Yigit, Gökhan; Li, Yun; Katsanis, Nicholas; Wollnik, Bernd**

RAP1-mediated MEK/ERK pathway defects in Kabuki syndrome

In: The journal of clinical investigation: JCI: the publication of the American Society for Clinical Investigation. - Ann Arbor, Mich: ASCI, Bd. 125.2015, 9, S. 3585-3599;  
[Imp.fact.: 13,215]

**Bülow, Luzie; Lissewski, Christina; Bressel, Rainer; Rauch, Anita; Stark, Zornitzta; Zenker, Martin; Bartsch, Oliver**  
Hydrops, fetal pleural effusions and chylothorax in three patients with CBL mutations

In: American journal of medical genetics. - New York, NY: Wiley-LissAmerican journal of medical genetics / A, Bd. 167.2015, 2, S. 394-399;  
[Imp.fact.: 2,048]

**Cordeddu, Viviana; Yin, Jiani C.; Gunnarsson, Cecilia; Virtanen, Carl; Drunat, Séverine; Lepri, Francesca; Luca, Alessandro De; Rossi, Cesare; Ciolfi, Andrea; Pugh, Trevor J.; Bruselles, Alessandro; Priest, James R.; Pennacchio, Len A.; Lu, Zhibin; Danesh, Arnavaz; Quevedo, Rene; Hamid, Alaa; Martinelli, Simone; Pantaleoni, Francesca; Gnazzo, Maria; Daniele, Paola; Lissewski, Christina; Bocchinfuso, Gianfranco; Stella, Lorenzo; Odent, Sylvie; Philip, Nicole; Faivre, Laurence; Vlckova, Marketa; Seemanova, Eva; Digilio, Cristina; Zenker, Martin; Zampino, Giuseppe; Verloes, Alain; Dallapiccola, Bruno; Roberts, Amy E.; Cavé, Hélène; Gelb, Bruce D.; Neel, Benjamin G.; Tartaglia, Marco**

Activating mutations affecting the Dbl homology domain of SOS2 cause Noonan syndrome

In: Human mutation. - New York, NY [u.a.]: Wiley-Liss, Bd. 36.2015, 11, S. 1080-1087;  
[Imp.fact.: 5,340]

**Döcker, Dennis; Schubach, Max; Menzel, Moritz; Spaich, Christiane; Gabriel, Heinz-Dieter; Zenker, Martin; Bartholdi, Deborah; Biskup, Saskia**

Germline PTPN11 and somatic PIK3CA variant in a boy with megalencephaly-capillary malformation syndrome (MCAP) - pure coincidence?

In: European journal of human genetics: the official journal of the European Society of Human Genetics. - Basingstoke: Stockton Press, Bd. 23.2015, 3, S. 409-412;  
[Imp.fact.: 4,349]

**Goyal, Manisha; Pradhan, Gaurav; Wieland, Ilse; Kapoor, Seema**

Craniofrontonasal syndrome - Atrial septal defect with a novel EFNB1 gene mutation

In: The Cleft palate craniofacial journal: official publication of the American Cleft Palate Craniofacial Association. - Chapel Hill, NC: American Cleft Palate Craniofacial Assoc, Bd. 52.2015, 2, S. 234-236;  
[Imp.fact.: 1,203]

**Hahn, Andreas; Lauriol, Jessica; Thul, Josef; Behnke-Hall, Kachina; Logeswaran, Tushiha; Schänzer, Anne; Bögürçü, Nuray; Garvalov, Boyan K.; Zenker, Martin; Gelb, Bruce D.; Gerlach, Susanne von; Kandolf, Reinhard; Kontaridis, Maria I.; Schranz, Dietmar**

Rapidly progressive hypertrophic cardiomyopathy in an infant with Noonan syndrome with multiple lentigines:

Palliative treatment with a rapamycin analog

In: American journal of medical genetics / A. - New York, NY: Wiley-Liss, Bd. 167.2015, 4, S. 744-751;  
[Imp.fact.: 2,048]

**Hochstenbach, Ron; Nowakowska, Beata; Volleth, Marianne; Ummels, Amber; Kutkowska-Kazmierczak, Anna; Obersztyn, Ewa; Ziemkiewicz, Kamil; Gerloff, Claudia; Schanze, Denny; Zenker, Martin; Muschke, Petra; Schanze, Ina; Poot, Martin; Liehr, Thomas**

Multiple small supernumerary marker chromosomes resulting from maternal meiosis I or II errors

In: Molecular syndromology. - Basel: Karger, Bd. 6.2015, insges. 12 S.;

**Hoffmann, Michael B.; Thieme, Hagen; Liedecke, Karin; Meltendorf, Synke; Zenker, Martin; Wieland, Ilse**

Visual pathways in humans with ephrin-B1 deficiency associated with the crano-fronto-nasal syndrome

In: Investigative ophthalmology & visual science: IOVS; official journal of the Association for Research in Vision and Ophthalmology. - Rockville, Md: ARVO, Bd. 56.2015, 12, S. 7427-7437;

[Imp.fact.: 3,404]

**Ivanova, Daniela; Dirks, Anika; Montenegro-Venegas, Carolina; Schöne, Cornelia; Altrock, Wilko D.; Marini, Claudia; Frischknecht, Renato; Schanze, Denny; Zenker, Martin; Gundelfinger, Eckart D.; Fejtová, Anna**

Synaptic activity controls localization and function of CtBP1 via binding to Bassoon and Piccolo

In: The EMBO journal. - Heidelberg: EMBO Press, Bd. 34.2015, 8, S. 1056-1077;

[Imp.fact.: 10,434]

**Karaer, Kadri; Lissewski, Christina; Zenker, Martin**

Familial cardiofaciocutaneous syndrome in a father and a son with a novel MEK2 mutation

In: American journal of medical genetics / A. - New York, NY: Wiley-Liss, Bd. 167.2015, 2, S. 385-388;

[Imp.fact.: 2,159]

**Körtvelyessy, Peter; Krägeloh-Mann, Ingeborg; Mawrin, Christian; Heinze, Hans-Jochen; Bittner, Daniel; Wieland, Ilse; Zenker, Martin; Nestor, Peter**

Hereditary diffuse leukoencephalopathy with spheroids (HDLS) with a novel CSF1R mutation and spinal cord involvement. Letter to the editor

In: Journal of the neurological sciences: official journal of the World Federation of Neurology. - Amsterdam [u.a.]: Elsevier Science, Bd. 358.2015, 1/2, S. 515-517;

[Imp.fact.: 2,474]

**Kratz, Christian P.; Franke, L.; Peters, Hartmut; Kohlschmidt, Nicolai; Kazmierczak, Bernd; Finckh, Ulrich; Bier, Andrea; Eichhorn, Birgit; Blank, Cornelia; Kraus, Cornelia; Kohlhase, Jürgen; Pauli, Silke; Wildhardt, Gabriele; Kutsche, Kerstin; Auber, Bernd; Christmann, Alexander; Bachmann, Nadine; Mitter, Diana; Cremer, Friedrich W.; Mayer, Karin; Daumer-Haas, Cornelia; Nevinny-Stickel-Hinzpeter, Claudia; Oeffner, Frank; Schlüter, Gregor; Gencik, Martin; Überlacker, Bärbel; Lissewski, Christina; Schanze, Ina; Greene, Mark H.; Spix, Claudia; Zenker, Martin**

Cancer spectrum and frequency among children with Noonan, Costello, and cardio-facio-cutaneous syndromes

In: British journal of cancer: BJC. - Edinburgh: Nature Publ. Group, Bd. 112.2015, 8, S. 1392-1397;

[Imp.fact.: 4,836]

**Lissewski, Christina; Kant, Sarina G.; Stark, Zornitza; Schanze, Ina; Zenker, Martin**

Copy number variants including RAS pathway genes - How much RASopathy is in the phenotype?

In: American journal of medical genetics / A. - New York, NY: Wiley-Liss, Bd. 167.2015, 11, S. 2685-2690;

[Imp.fact.: 2,159]

**Machts, Judith; Loewe, Kristian; Kaufmann, Joern; Jakubiczka, Sibylle; Abdulla, Susanne; Petri, Susanne; Dengler, Reinhart; Heinze, Hans-Jochen; Vielhaber, Stefan; Schoenfeld, Mircea Ariel; Bede, Peter**

Basal ganglia pathology in ALS is associated with neuropsychological deficits

In: Neurology: official journal of the American Academy of Neurology. - Hagerstown, Md: Lippincott Williams & Wilkins, Bd. 85.2015, 15, S. 1301-1309;

[Imp.fact.: 8,185]

**Marchegiani, Shannon; Davis, Taylor; Tessadori, Federico; Haaften, Gijs van; Brancati, Francesco; Hoischen, Alexander; Huang, Haigen; Valkanas, Elise; Pusey, Barbara; Schanze, Denny; Venselaar, Hanka; Silhout, Anneke T. Vulto -van; Wolfe, Lynne A.; Tifft, Cynthia J.; Zerfas, Patricia M.; Zambruno, Giovanna; Kariminejad, Ariana; Sabbagh-Kermani, Farahnaz; Lee, Janice; Tsokos, Maria G.; Lee, Chyi-Chia R.; Ferraz, Victor; Silva, Eduarda Morgana da; Stevens, Cathy A.; Roche, Nathalie; Bartsch, Oliver; Farndon, Peter; Bermejo-Sanchez, Eva; Brooks, Brian P.; Maduro, Valerie; Dallapiccola, Bruno; Ramos, Feliciano J.; Chung, Hon-Yin Brian; Caignec, Cédric Le; Martins, Fabiana; Jacyk, Witold K.; Mazzanti, Laura; Brunner, Han G.; Bakkers, Jeroen; Lin, Shuo; Malicdan, May Christine V.; Boerkoel, Cornelius F.; Gahl, William A.; Vries, Bert B.A. de; Haelst, Mieke M. van; Zenker, Martin; Markello, Thomas C.**

Recurrent mutations in the basic domain of TWIST2 cause Ablepharon macrostomia and Barber-Say syndromes  
In: *The American journal of human genetics*. - New York, NY [u.a.]: Cell Press, Bd. 97.2015, 1, S. 99-110;  
[Imp.fact.: 10,931]

**Martinelli, Simone; Stellacci, Emilia; Pannone, Luca; D'Agostino, Daniela; Consoli, Federica; Lissewski, Christina; Silvano, Marianna; Cencelli, Giulia; Lepri, Francesca; Maitz, Silvia; Pauli, Silke; Rauch, Anita; Zampino, Giuseppe; Selicorni, Angelo; Melançon, Serge; Digilio, Maria C.; Gelb, Bruce D.; Luca, Alessandro De; Dallapiccola, Bruno; Zenker, Martin; Tartaglia, Marco**

Molecular diversity and associated phenotypic spectrum of germline CBL mutations  
In: *Human mutation*. - New York, NY [u.a.]: Wiley-Liss, Bd. 36.2015, 8, S. 787-796;  
[Imp.fact.: 5,144]

**Meester, Josephina A.N.; Southgate, Laura; Stitrich, Anna-Barbara; Venselaar, Hanka; Beekmans, Sander J.A.; Hollander, Nicolette den; Bijlsma, Emilia K.; Enden, Appolonia Helderman -van den; Verheij, Joke B.G.M.; Glusman, Gustavo; Roach, Jared C.; Lehman, Anna; Patel, Millan S.; Vries, Bert B.A. de; Ruivenkamp, Claudia; Itin, Peter; Prescott, Katrina; Clarke, Sheila; Trembath, Richard; Zenker, Martin; Sukalo, Maja; Laer, Lut Van; Loey, Bart; Wuyts, Wim**

Heterozygous loss-of-function mutations in DLL4 cause Adams-Oliver syndrome  
In: *The American journal of human genetics*. - New York, NY [u.a.]: Cell Press, Bd. 97.2015, 3, S. 475-482;  
[Imp.fact.: 10,931]

**Rauen, Katherine A.; Huson, Susan M.; Burkitt-Wright, Emma; Evans, D. Gareth; Farschtschi, Said; Ferner, Rosalie E.; Gutmann, David H.; Hanemann, C. Oliver; Kerr, Bronwyn; Legius, Eric; Parada, Luis F.; Patton, Michael; Peltonen, Juha; Ratner, Nancy; Riccardi, Vincent M.; Vaart, Thijs van der; Vakkula, Miikka; Viskochil, David H.; Zenker, Martin; Upadhyaya, Meena**

Recent developments in neurofibromatoses and RASopathies - Management, diagnosis and current and future therapeutic avenues  
In: *American journal of medical genetics*. - New York, NY: Wiley-LissAmerican journal of medical genetics / A, Bd. 167.2015, 1, S. 1-10;  
[Imp.fact.: 2,048]

**Richter, Anni; Guitart-Masip, Marc; Barman, Adriana; Libeau, Catherine; Behnisch, Gusalija; Czerney, Sophia; Schanze, Denny; Assmann, Anne; Klein, Marieke; Düzel, Emrah; Zenker, Martin; Seidenbecher, Constanze; Schott, Björn H.**  
Corrigendum - Valenced action/inhibition learning in humans is modulated by a genetic variant linked to dopamine D2 receptor expression  
In: *Frontiers in systems neuroscience*. - Lausanne: Frontiers Research Foundation; Bd. 9.2015, Art.-Nr. 36, insges. 2 S.;

**Sadowski, Carolin E.; Lovric, Svetlana; Ashraf, Shazia; Pabst, Werner L.; Gee, Heon Yung; Kohl, Stefan; Engelmann, Susanne; Vega-Warner, Virginia; Fang, Humphrey; Halbritter, Jan; Somers, Michael J.; Tan, Weizhen; Shril, Shirlee; Fessi, Inès; Lifton, Richard P.; Bockenhauer, Detlef; El-Desoky, Sherif; Kari, Jameela A.; Zenker, Martin; Kemper, Markus J.; Mueller, Dominik; Fathy, Hanan M.; Soliman, Neveen A.; Hildebrandt, Friedhelm**  
A single-gene cause in 29.5% of cases of steroid-resistant nephrotic syndrome  
In: *Journal of the American Society of Nephrology: JASN*. - Washington, DC: American Society of Nephrology, Bd. 26.2015, 6, S. 1279-1289;  
[Imp.fact.: 9,343]

**Sag, Sebnem Ozemri; Gorukmez, Orhan; Ture, Mehmet; Sahinturk, Serdar; Topak, Ali; Gulten, Tuna; Schanze, Denny;**

**Yakut, Tahsin; Zenker, Martin**

A novel mutation in the FRAS1 gene in a patient with Fraser syndrome

In: Genetic counseling: medical, psychological and ethical aspects. - Genève: Ed. Médecine et Hygiène, Bd. 26.2015, 1, S. 21-27;

[Imp.fact.: 0,444]

**Sotero-Caio, Cibele G.; Volleth, Marianne; Hoffmann, Federico G.; Scott, LuAnn; Wichman, Holly A.; Yang, Fengtang; Baker, Robert J.**

Integration of molecular cytogenetics, dated molecular phylogeny, and model-based predictions to understand the extreme chromosome reorganization in the Neotropical genus *Tonatia* (Chiroptera: Phyllostomidae)

In: BMC evolutionary biology. - London: BioMed Central; Bd. 15.2015, Art. 220, insges. 15 S.; [Imp.fact.: 3,368]

**Southgate, Laura; Sukalo, Maja; Karountzos, Anastasios S.V.; Taylor, Edward J.; Collinson, Claire S.; Ruddy, Deborah; Snape, Katie M.; Dallapiccola, Bruno; Tolmie, John L.; Joss, Shelagh; Brancati, Francesco; Digilio, Maria Cristina; Graul-Neumann, Luitgard M.; Salviati, Leonardo; Coerdt, Wiltrud; Jacquemin, Emmanuel; Wuyts, Wim; Zenker, Martin; Machado, Rajiv D.; Trembath, Richard C.**

Haploinsufficiency of the NOTCH1 receptor as a cause of Adams-Oliver syndrome with variable cardiac anomalies

In: Circulation / Cardiovascular genetics. - Philadelphia, Pa: Lippincott, Williams & Wilkins, Bd. 8.2015, 4, S. 572-581; [Imp.fact.: 4,631]

**Sukalo, Maja; Tilsen, Felix; Kayserili, Hülya; Müller, Dietmar; Tüysüz, Beyhan; Ruddy, Deborah M.; Wakeling, Emma; Ørstavik, Karen Helene; Snape, Katie M.; Trembath, Richard; Smedt, Maryse De; Aa, Nathalie van der; Skalej, Martin; Mundlos, Stefan; Wuyts, Wim; Southgate, Laura; Zenker, Martin**

DOCK6 mutations are responsible for a distinct autosomal-recessive variant of AdamsOliver syndrome associated with brain and eye anomalies

In: Human mutation. - New York, NY [u.a.]: Wiley-Liss, Bd. 36.2015, 6, S. 593-598; [Imp.fact.: 5,144]

**Vodopiatz, Julia; Seidl, Rainer; Prayer, Daniela; Khan, M. Imran; Mayr, Johannes A.; Streubel, Berthold; Steiß, Jens-Oliver; Hahn, Andreas; Csácsich, Dagmar; Castro, Christel; Assoum, Mirna; Müller, Thomas; Wieczorek, Dagmar; Mancini, Grazia M. S.; Sadowski, Carolin E.; Lévy, Nicolas; Mégarbané, André; Godbole, Koumudi; Schanze, Denny; Hildebrandt, Friedhelm; Delague, Valérie; Janecke, Andreas R.; Zenker, Martin**

WDR73 mutations cause infantile neurodegeneration and variable glomerular kidney disease

In: Human mutation. - New York, NY [u.a.]: Wiley-Liss, Bd. 36.2015, 11, S. 1021-1028; [Imp.fact.: 5,340]

**Volleth, Marianne; Loidl, Josef; Mayer, Frieder; Yong, Hoi-Sen; Müller, Stefan; Heller, Klaus-Gerhard**

Surprising genetic diversity in *Rhinolophus luctus* (Chiroptera: Rhinolophidae) from Peninsular Malaysia - Description of a new species based on genetic and morphological characters

In: Acta chiropterologica: international journal of bat biology. - Warszawa: Acad, Bd. 17.2015, 1, S. 1-20; [Imp.fact.: 1,133]

**Weiss, Frank Ulrich; Schurmann, Claudia; Guenther, Annett; Ernst, Florian; Teumer, Alexander; Mayerle, Julia; Simon, Peter; Völzke, Henry; Radke, Dörte; Greinacher, Andreas; Kühn, Jens-Peter; Zenker, Martin; Völker, Uwe; Homuth, Georg; Lerch, Markus M.**

Fucosyltransferase 2 (FUT2) non-secretor status and blood group B are associated with elevated serum lipase activity in asymptomatic subjects, and an increased risk for chronic pancreatitis: a genetic association study

In: Gut: an international journal of gastroenterology and hepatology. - London: BMJ Publishing Group, Bd. 64.2015, 4, S. 646-656;

[Imp.fact.: 13,319]