

## LIST of PUBLICATIONS

**Prof. Dr. Bernhard Kräutler**

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### **2020**

299. Steffen Jockusch, and Bernhard Kräutler  
The Red Chlorophyll Catabolite (RCC) is an Inefficient Sensitizer of Singlet Oxygen -  
Photochemical Studies of the Methyl Ester of RCC.  
*Photochem Photobiol. Sci.* **2020**, *19*, 668-673
298. Elvin Salerno, Nicholas A. Miller, Arkaprabha Konar, Robert Salchner, Christoph  
Kieninger, Klaus Wurst, Kenneth G. Spears, Bernhard Kräutler, and Roseanne J.  
Sension  
Exceptional Photochemical Stability of the Co-C Bond of Alkynyl-Cobalamins –  
Novel Potential Antivitamins B<sub>12</sub> and Core Elements of Vitamin B<sub>12</sub>-Based Biological  
Vectors  
*Inorg. Chem.* **2020**, *59*, 6422-6431

## 2019

297. Nicholas A. Miller, Lindsay B. Michocki, Roberto Alonso-Mori, Alexander Britz, Aniruddha Deb, Daniel P. DePonte, James M. Glowonia, April K. Kaneshiro, Christoph Kieninger, Jake Koralek, Joseph H. Meadows, Tim B. van Driel, Bernhard Kräutler, Kevin J. Kubarych, James E. Penner-Hahn and Roseanne J. Sension  
Antivitamins B<sub>12</sub> in a Microdrop: The Excited State Structure of a Precious Sample Using Transient Polarized X-ray Absorption Near Edge Structure  
*J. Phys. Chem. Lett.*, **2019**, *10*, 5484-5489 DOI: 10.1021/acs.jpcllett.9b02202
296. Christoph Kieninger, Joseph A. Baker, Maren Podewitz, Klaus Wurst, Steffen Jockusch, Andrew D. Lawrence, Evelyne Deery, Karl Gruber, Klaus R. Liedl, Martin J. Warren & Bernhard Kräutler  
Zinc Substitution of Cobalt in Vitamin B<sub>12</sub> - Zincobyric acid and Zincobalamin as Luminescent Structural B<sub>12</sub>-Mimics  
*Angew. Chem. Int. Ed.* **58**, 14568–14572 (2019) DOI: 10.1002/anie.201908428  
*Angew. Chem.* **131**, 14710-14714 (2019) DOI: 10.1002/ange.201908428  
Dedicated to Professor Dieter Jahn on the occasion of his 60<sup>th</sup> birthday
295. Christoph Kieninger, Evelyne Deery, Andrew D. Lawrence, Maren Podewitz, Klaus Wurst, Emi Nemoto-Smith, Florian J. Widner, Joseph A. Baker, Steffen Jockusch, Christoph R. Kreutz, Klaus R. Liedl, Karl Gruber, Martin J. Warren & Bernhard Kräutler  
The Hydrogenobyric Acid Structure Reveals the Corrin Ligand as an Entatic State Module Empowering B<sub>12</sub>-Cofactors for Catalysis  
*Angew. Chem. Int. Ed.* **58**, 10756-10760 (2019) DOI: 10.1002/anie.201904713  
Die Hydrogenobyrsäure-Struktur enthüllt den Corrin-Liganden als entatisches Zustandsmodul zur Steigerung der Katalyseaktivität von B<sub>12</sub>-Cofaktoren  
*Angew. Chem.* **131**, 10869-110873 (2019) DOI: 10.1002/ange.201904713  
Dedicated to Professor Albert Eschenmoser on the occasion of his 94<sup>th</sup> birthday
294. Simone Moser and Bernhard Kräutler  
In Search of Bioactivity – Phyllobilins, an Unexplored Class of Abundant Heterocyclic Plant Metabolites from Breakdown of Chlorophyll  
*Israel J. Chem.* **59**, 420 – 431 (2019) DOI: 10.1002/ijch.201900012

293. Stefan Hörtensteiner, Mareike Hauenstein and Bernhard Kräutler  
Chlorophyll Breakdown - Regulation, Biochemistry and Phyllobilins as its Products  
Metabolism, Structure and Function of Plant Tetrapyrroles  
Advances in Botanical Research **90**, 213-271 (2019)  
<https://doi.org/10.1016/bs.abr.2019.03.004>
292. Chengjie Li and Bernhard Kräutler  
A Pink Colored Dioxobilin-Type Phyllobilin from Breakdown of Chlorophyll  
Monatshefte der Chemie (Chemical Monthly), **150**, 813-820 (2019)  
<https://doi.org/10.1007/s00706-019-02396-5>  
Dedicated to Professor Heinz Falk on the occasion of his 80<sup>th</sup> birthday
291. Bernhard Kräutler, Thomas Müller and Steffen Jockusch  
Comment on A. Tiessen “The fluorescent blue glow of banana fruits is not due to  
sytoplasmic plastidial catabolism but arises from insoluble phenols esterified to the  
cell wall”  
*Plant Science* **280**, 461-462 (2019) DOI: 10.1016/j.plantsci.2018.12.004
290. Iris Süßenbacher, Damian Menghini, Gerhard Scherzer, Kathrin Salinger, Theresia  
Erhart, Simone Moser, Clemens Vergeiner, Stefan Hörtensteiner and Bernhard  
Kräutler  
Cryptic Chlorophyll Breakdown in Non-Senescent Green *Arabidopsis thaliana* Leaves  
*Photosynthesis Research*, **142**, 69-85 (2019)  
<https://doi.org/10.1007/s11120-019-00649-2>
289. Chengjie Li, Theresia Erhart, Xiujun Liu and Bernhard Kräutler  
Yellow Dioxobilin-Type Tetrapyrroles from Chlorophyll Breakdown in Higher Plants  
- A New Class of Colored Phyllobilins  
*Chem. Europ. J.*, **25**, 4052-4057 (2019); DOI: 10.1002/chem.201806038
288. Bernhard Kräutler  
Cobalt – my Element  
*Chem. Europ. J.* **25**, 4870-4870 (2019); DOI: 10.1002/chem.201805804
287. B. Kräutler  
Chlorophyll Breakdown - How Chemistry Has Helped to Decipher a Striking  
Biological Enigma  
*Synlett*, **30**, 263-274 (2019); DOI: 10.1055/s-000000083

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286. Theresia Erhart, Stefan Vergeiner, Bernhard Kräutler and Thomas Müller  
Chlorophyll Breakdown in a Fern – Discovery of Carbon-Skeleton Rearranged  
Phyllobilin Isomers  
*Angew. Chem. Intl. Ed.* **57**, 14937-14941 (2018) DOI: 10.1002/anie. 201807818  
Chlorophyllabbau im Farn – Entdeckung von Phyllobilin-Isomeren mit umgelagertem  
Kohlenstoffgerüst  
*Angewandte Chemie* **130**, 15153-15157 (2018)
285. Theresia Erhart, Cecilia Mittelberger, Chengjie Li, Maren Podewitz, Xiujun Liu,  
Gerhard Scherzer, Gertrud Stoll, Josep Valls, Peter Robatscher, Klaus R. Liedl,  
Michael Oberhuber and Bernhard Kräutler  
Novel Types of Hypermodified Fluorescent Phyllobilins from Breakdown of  
Chlorophyll in Senescent Leaves of Grapevine (*Vitis vinifera*)  
*Chem. Europ. J.*, **24**, 17268-17279 (2018) DOI: 10.1002/chem.201803128
284. Bernhard Kräutler  
Organometallic B<sub>12</sub>-Derivatives in Life Processes, in  
*Bioorganometallic Chemistry* (W. Weigand, U.-P. Appel, eds.)  
deGruyter, Berlin, Germany, pp.237-278 (2020).
283. Chengjie Li, Klaus Wurst and Bernhard Kräutler  
A Dipyrrin Programmed for Covalent Loading with Fullerenes  
*Chem. Europ. J.* **24**, 10032-10037 (2018) DOI: 10.1002/chem.201801995
282. Bernhard Kräutler  
Biological Organometallic Chemistry of Vitamin B<sub>12</sub>-Derivatives  
*Advances in Bioorganometallic Chemistry* (T. Hirao & T. Moriuchi, eds.)  
Elsevier, Cambridge, USA, pp. 399-429 (2019).
281. Chengjie Li, Klaus Wurst, Joachim Berghold, Maren Podewitz, Klaus R. Liedl and  
Bernhard Kräutler  
Pyro-Phyllobilins – Elusive Chlorophyll Catabolites Lacking a Critical Carboxylate  
Function of the Natural Chlorophylls  
*Chem. Europ. J.*, **24**, 2987-2998 (2018) DOI: 10.1002/chem.201705331

280. Bernhard Kräutler and Bernhard Jaun  
Vitamin B<sub>12</sub> and Cofactor F430, *in press*  
in *Porphyrins for the 21<sup>st</sup> Century* (P.J.Brothers & M.O.Senge, Eds.)  
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279. S. Moser, G. Scherzer and B. Kräutler  
On the Nature of Isomeric Nonfluorescent Chlorophyll Catabolites in Leaves and Fruit  
- A Study with a Ubiquitous Phylloleucobilin and its Main Isomerization Product  
*Chemistry and Biodiversity* **2017**, *14*, e1700368  
Dedicated to Prof. Dieter Seebach on the occasion of his 80<sup>th</sup> birthday
278. E. Mutti, M. Hunger, S. Fedosov, E. Nexo and B. Kräutler  
Organometallic DNA-B<sub>12</sub>-Conjugates as Potential Oligonucleotide Vectors -  
Synthesis, Structural and Binding Studies with Human Cobalamin-Transport Proteins  
*ChemBioChem* **2017**, *18*, 2280-2291
277. J. S. Bloch, M. Ruetz, B. Kräutler and K. P. Locher  
Structure of the human transcobalamin beta domain in four distinct states  
*PloS One* **2017**, *12*(9): e0184932
276. F. J. Widner, F. Gstrein and Bernhard Kräutler  
Partial Synthesis of Coenzyme B<sub>12</sub> from Cobyric Acid  
*Helv. Chim. Acta* **2017**, *100*, e1700170  
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275. S. Banala, S. Fokong, Ch. Brand, Ch. Andreou, B. Kräutler, M. Rueping, and F. Kiessling  
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*Chem. Sci.*, **8**, 6176-6181 (2017)
274. C. N. Brenig, M. Ruetz, C. Kieninger, K. Wurst and B. Kräutler,  
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Diphenyliodonium Chloride  
*Chemistry – Europ. J.* **23**, 9726-9731 (2017)
273. Z. Li, A. Shanmuganathan, M. Ruetz, K. Yamada, N. A. Lesniak, B. Kräutler, T. C. Brunold, M. Koutmos and R. Banerjee,  
Glutathionyl-Cobalamin is an Intermediate in Thiol Oxidation Catalyzed by the B<sub>12</sub>  
Trafficking Protein CblC  
*J. Biol. Chem.* **292**, 9733-974 (2017)

272. M. Ruetz, A. Shanmuganathan, C. Gherasim, A. Karasik, R. Salchner, C. Kieninger, K. Wurst, R. Banerjee, M. Koutmos and B. Kräutler\*  
Antivitamin B<sub>12</sub> Inhibition of Human B<sub>12</sub>-Processing Enzyme CblC - Crystal Structure of Abortive Ternary Complex with Cosubstrate Glutathione, *Angew. Chem. Int. Ed.* **56**, 7387-7392 (2017)  
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271. C. Mittelberger, H. Yalcinkaya, C. Pichler, J. Gasser, G. Scherzer, T. Erhart, S. Schumacher, B. Holzner, K. Janik, P. Robatscher, T. Müller, B. Kräutler, and M. Oberhuber  
Pathogen-Induced Leaf Chlorosis: Products of Chlorophyll Breakdown Found in Degreened Leaves of Phytoplasma-Infected Apple (*Malus × domestica* Borkh.) and Apricot (*Prunus armeniaca* L.) Trees Relate to the Pheophorbide a Oxygenase/Phyllobilin Pathway  
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270. S.A. Mireku, M. Ruetz M, T. Zhou, V.M. Korkhov, B. Kräutler, K.P. Locher  
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269. Nicholas A. Miller, Theodore E. Wiley, Kenneth G. Spears, Markus Ruetz, Christoph Kieninger, Bernhard Kräutler, and Roseanne J. Sension  
Toward the Design of Photoresponsive Conditional Antivitamins B<sub>12</sub>: A Transient Absorption Study of an Arylcobalamin and an Alkynylcobalamin  
*J. Am. Chem. Soc.*, **138**, 14250-14256 (2016)
268. Chengjie Li, Klaus Wurst, Steffen Jockusch, Karl Gruber, Maren Podewitz, Klaus R. Liedl, and Bernhard Kräutler  
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*Angew. Chem. Int. Ed.* **55**, 15760-15765, (2016)  
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*Angewandte Chemie* **128**, 15992-15997 (2016)
267. Marissa B. Guzzo, Hoa T. Nguyen, Thanh H. Pham, Monika Wyszczelska-Rokiel, Hieronim Jakubowski, Kerstin A. Wolff, Sam Ogowang, Joseph L. Timpona, Soumya Gogula, Michael R. Jacobs, Markus Ruetz, Bernhard Kräutler, Donald W. Jacobsen, Guo-Fang Zhang, Liem Nguyen  
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*PLOS Pathogens* **12**: e1005949 (2016), DOI: 10.1371/journal.ppat.1005949
266. T. Erhart, C. Mittelberger, C. Vergeiner, G. Scherzer, B. Holzner, P. Robatscher, M. Oberhuber, B. Kräutler  
Chlorophyll Catabolites in Senescent Leaves of the Plum Tree (*Prunus domestica*)  
*Chem. & Biodiversity*, **13**, 1441-1453 (2016)
265. F. J. Widner, A. D. Lawrence, E. Deery, D. Heldt, S. Frank, K. Gruber, K. Wurst, M. J. Warren, B. Kräutler  
Total Synthesis, Structure and Biological Activity of Adenosylrhodibalamin – the Nonnatural Rhodium Homologue of Coenzyme B<sub>12</sub>  
*Angew. Chem. Int. Ed.* **55**, 11281-11289 (2016)  
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264. M. Scherl, T. Müller, C. R. Kreutz, R. G. Huber, E. Zass, K. R. Liedl, B. Kräutler  
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*Chem. Eur. J.*, **22**, 9498-9503 (2016)



263. S. Banala, K. Wurst, B. Kräutler  
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*ChemPlusChem*, **81**, 477-488 (2016)
262. C. Li, K. Wurst, Y. Feng, B. Kräutler  
Synthesis, spectroscopic and crystallographic analysis of the Zn-complex of a di-( $\beta, \beta'$ -sulfoleno)pyrin – Model for Zn-complexes of bilirubin and of phylloxanthobilins  
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261. K. E. Helliwell, A. D. Lawrence, A. Holzer, U. J. Kudahl, S. Sasso, B. Kräutler, D. J. Scanlan, M. J. Warren, A. G. Smith  
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*Angew. Chem.*, **128**, 5728-5730 (2016)
259. C. Li, B. Kräutler  
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*J. Porph. Phthal.*, **20**, 388-396 (2016)
258. K. Netsomboon, A. Feßler, L. Erletz, F. Prüfert, M. Ruetz, C. Kieninger, B. Kräutler, A. Bernkop-Schnürch  
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257. B. Kräutler  
Breakdown of Chlorophyll in Higher Plants - Phyllobilins as Abundant, Yet Hardly Visible Signs of Ripening, Senescence and Cell Death (Review)  
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Der Chlorophyll-Abbau in höheren Pflanzen – Phyllobiline als weitverbreitete, aber kaum sichtbare Zeichen von Reifung, Seneszenz und Zelltod  
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**Earlier Publications (until 2015)**

256. I. Süßenbacher, S. Hörtensteiner, B. Kräutler  
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*Angew. Chem.*, **127**, 13981-13985 (2015)
255. I. Süßenbacher, C. Kreutz, B. Christ, S. Hörtensteiner, B. Kräutler  
Hydroxymethylated Dioxobilins in Senescent *Arabidopsis thaliana* Leaves – Sign of a Puzzling Biosynthetic Intermezzo of Chlorophyll Breakdown  
*Chem. Eur. J.*, **21**, 11664-11670 (2015)
254. B. Kräutler  
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*Chem. Eur. J.*, **21**, 11280-11287 (2015)
253. M. Hunger, B. Kräutler  
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252. C. Li, B. Kräutler  
Transition Metal Complexes of Phyllobilins – A New Realm of Bioinorganic Chemistry  
*Dalton Transactions*, **44**, 10116-10127 (2015)
251. M. Hunger, K. Wurst, B. Kräutler  
Synthesis, solution and crystal structure of the conenzyme B<sub>12</sub> analogue Coβ-2'-fluoro-2',5'-dideoxyadenosylcobalamin  
*J. Inorg. Biochem.* **148**, 62-68 (2015)
250. M. Roiser, T. Müller, B. Kräutler  
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*J. Agric. Food Chem.*, **63**, 1385-1392 (2015)
249. C. Vergeiner, M. Ulrich, C. Li, X. Liu, T. Müller, B. Kräutler  
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247. T. Müller, B. Kräutler  
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246. M. Hunger, E. Mutti, A. Rieder, B. Enders, E. Nexø, B. Kräutler  
An Organometallic B<sub>12</sub>-DNA-Conjugate-Synthesis, Structure Analysis & Studies of Binding to Human B<sub>12</sub>-Transporter Proteins  
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245. M. A. Keller, U. Zander, J. E. Fuchs, C. Kreutz, K. Watschinger, T. Müller, G. Golderer, K. R. Liedl, M. Ralser, B. Kräutler, E. R. Werner, J. A. Marquez  
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241. B. Christ, A. Egert, I. Süssenbacher, B. Kräutler, D. Bartels, S. Peters, S. Hörtensteiner  
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Hydroxymethylated Phyllobilins – A Puzzling New Feature of the Dioxobilin-Branch of Chlorophyll Breakdown  
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*Photosynthetic Pigments – Chemical Structure, Biological Function and Ecology*, Eds. T. Golovko, W. Gruszecki, M. Prasad, K. Strzalka, Russ. Acad. Science Syktyvkar, 55-85 (2014)
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