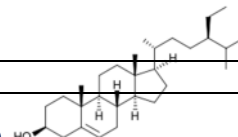


Polyphenole: Cholesterin, Resveratrol, Taxifolin, Silibinin, Anthocyane u.a. Phenole

„**Polyphenole** sind aromatische Verbindungen, die zwei oder mehr direkt an einen aromatischen Ring gebundene Hydroxygruppen enthalten und zu den sekundären Pflanzenstoffen gerechnet werden“. Quelle: <http://de.wikipedia.org/wiki/Polyphenole> aromatisch = duftend

Cholesterin ist ein wichtiger Bestandteil der Plasmamembran von Tieren und Menschen. Bakterien borgen sich das Cholesterin ihrer Membranen u.a. in Lipid Rafts von ihrem Wirt.

β-Sitosterin ist als Cyclopentanoperhydrophenanthren ein **Phytosterin**, das dem Cholesterin der Tiere und des Menschen ähnlich ist.



Steroidhormone – wie die Nebennierenrinden- und Geschlechtshormone (Cyclopentanoperhydrophenanthrene, Cholesterin-Derivate) der Tiere und des Menschen. Mineralokortikoide – wie Aldosteron, Glucocortikoide – wie Cortisol, Dehydroepiandrosteron (DHE), Oestrogene – wie Oestradiol, Gestagene – wie Progesteron, Androgene – wie Testosteron

Baulieu E, Thomas G et al. (2000) **Dehydroepiandrosterone (DHEA) DHEA sulfate, and aging: contribution of the DHEAge Study to a soziobiomedical issue.** Proc Natl Acad Sci USA, Bd 97 (8, 4279–4284, [PMID 10760294](https://pubmed.ncbi.nlm.nih.gov/10760294/) <https://www.ncbi.nlm.nih.gov/pubmed/10760294>

Cholesterin

[Huang Z, London E.](#) (2016) **Cholesterol lipids and cholesterol-containing lipid rafts in bacteria.** *Chem Phys Lipids*. pii: S0009-3084(16)30036-6. doi: 10.1016/j.chemphyslip.2016.03.002. [Epub ahead of print] <http://www.ncbi.nlm.nih.gov/pubmed/26964703>

Resveratrol

Docherty JJ, Fu MM, Stiffler BS, et al. (1999) Resveratrol inhibition of herpes simplex virus replication. *Antiviral Res* 43(3), 145-55. [Abstract](#)

Bhat KPL, Kosmeder JW, Pezzuto JM (2001) Biological effects of resveratrol. *Antioxid Redox Signal* 3(6), 1041-64. [Abstract](#)

Evers DL, Wang X, Huong SM, et al. (2004) 3,4',5-Trihydroxy-trans-stilbene (resveratrol) inhibits human cytomegalovirus replication and virus-induced cellular signaling. *Antiviral Res* 63(2), 85-95. [Abstract](#)

Docherty JJ, Sweet TJ, Bailey E, et al. (2006) Resveratrol inhibition of varicella-zoster virus replication in vitro. *Antiviral Res* 72(3), 171-7. [Abstract](#)

Naesens L, Bonnafous P, Agut H, et al. (2006) Antiviral activity of diverse classes of broad-acting agents and natural compounds in HHV-6-infected lymphoblasts. *J Clin Virol* 50:69-75. [Abstract](#)

Guan WD, Yang ZF, Liu N, et al. (2008) In vitro experimental study on the effect of resveratrol against several kinds of respiroviruses. *Zhong Yao Cai* 31(9), 1388-90. [Abstract](#)

Goswami SK, Das DK (2009) Resveratrol and chemoprevention. *Cancer Lett* 284(1), 1-6. [Abstract](#)

Berardi V, Ricci F, Castelli M, et al. (2009) Resveratrol exhibits a strong cytotoxic activity in cultured cells and has an antiviral action against polyomavirus: potential clinical use. *J Exp Clin Cancer Res* 28:96. [Abstract](#)

Matias AA, Serra AT, Silva AC, et al. (2010) Portuguese winemaking residues as a potential source of natural anti-adenoviral agents. *Int J Food Sci Nutr* 61(4), 357-68. [Abstract](#)

Shetty AK (2011) Promise of resveratrol for easing status epilepticus and epilepsy. *Pharmacol Ther* 131(3), 269-86. [Abstract](#)

Bolling BW, Chen CY, McKay DL, et al. (2011) Tree nut phytochemicals: composition, antioxidant capacity, bioactivity, impact factors. A systematic review of almonds, Brazils, cashews, hazelnuts, macadamias, pecans, pine nuts, pistachios and walnuts. *Nutr Res Rev* 24(2), 244-75. [Abstract](#)

Thapa M, Kim Y, Desper J, et al. (2012) Synthesis and antiviral activity of substituted quercetins. *Bioorg Med Chem Lett* 22(1), 353-6. [Abstract](#)

[Alessandra DL](#), [Giuseppe A](#), [Egidio L](#) et al. (2012) Resveratrol inhibits epstein barr virus lytic cycle in burkitt's lymphoma cells by affecting multiple molecular targets. *Antiviral Res.* pii: S0166-3542(12)00200-8. doi: 10.1016/j.antiviral.2012.09.003. [Epub ahead of print] <http://www.ncbi.nlm.nih.gov/pubmed/22985630>

[Sato F](#), [Martinez NE](#), [Shahid M](#), [Rose JW](#), [Carlson NG](#), [Tsunoda I](#). (2013) **Resveratrol exacerbates both autoimmune and viral models of multiple sclerosis.** *Am J Pathol.* 183(5), 1390-6. doi: 10.1016/j.ajpath.2013.07.006. Epub 2013 Oct 1. <http://www.ncbi.nlm.nih.gov/pubmed/24091251>

Batt YK, Joghee NM (2013) Resveratrol supplementation in patients with **Type 2 Diabetes mellitus**: A prospective, open label, randomized controlled trial. *Am J Clin Nutr.* 4(8). http://www.irjponline.com/admin/php/uploads/1973_pdf.pdf

Carrizzo A, Forte M, Antonio Damato A et al. (2013) Antioxidant effects of resveratrol in cardiovascular, cerebral and metabolic diseases. *Food and Chemical Toxicology* 61, 215–226 <http://www.ncbi.nlm.nih.gov/pubmed/23872128>

Nwachukwu JC, Srinivasan S, Bruno NE et al. (2014) Resveratrol modulates the inflammatory response via an estrogen receptor-signal integration network. <http://dx.doi.org/10.7554/eLife.02057> Cite as eLife 2014;10.7554/eLife.02057 Download [PDF](#) <http://elifesciences.org/content/early/2014/04/24/eLife.02057>

Liu K et al. (2014) Effect of resveratrol on **glucose control and insulin sensitivity**: a meta-analysis of 11 randomized controlled trials. *Am J Clin Nutr.* ajcn.082024 <http://ajcn.nutrition.org/content/early/2014/04/02/ajcn.113.082024.abstract>

Yang X, Li X, Ren J (2014) From French Paradox to Cancer Treatment: **Anti-cancer Activities and Mechanisms of Resveratrol.** *Anticancer Agents Med Chem.* 14(6), 806-25 <http://www.ncbi.nlm.nih.gov/pubmed/24851878>

[Witte AV](#), [Kerti L](#), [Margulies DS](#), [Flöel A](#) (2014) **Effects of resveratrol in memory performance, hippocampal functional connectivity, and glucose metabolism in healthy older adults.** *J Neurosci.* 34(23), 7852-70 doi: 10.1523/JNEUROSCI.0385-14.2014. <http://www.ncbi.nlm.nih.gov/pubmed/24899709>

Taxifolin und andere Flavonoide

Taxifolin ist ein Flavanolol. Taxifolin wirkt chemopräventiv antioxidativ, antiinflammatorisch, antibakteriell und antithrombogen. Taxifolin ist nicht mutagen wirksam. <http://de.wikipedia.org/wiki/Taxifolin> <http://en.wikipedia.org/wiki/Taxifolin> <http://de.wikipedia.org/wiki/Flavonoide> flavus (lat.) = gelb

Weinges K (1959) Stereochemische Zusammenhänge in der Gruppe der Flavonoide. *Justus Liebigs Annalen der Chemie* [627\(1\)](#), 229–236

[GUPTA MB](#), [BHALLA TN](#), [GUPTA GP](#) et al. (1971) ANTI-INFLAMMATORY ACTIVITY OF TAXIFOLIN. *The Japanese Journal of Pharmacology* 21(3), 377-382

[Jeffrey AM](#), [Knight M](#), [Evans WC](#) (1972) The bacterial degradation of flavonoids. Hydroxylation of the A-ring of taxifolin by a soil pseudomonad. *Biochem J.* 130(2), 373–381.

[Brown S](#), [Griffiths LA](#) (1983) New metabolites of the naturally-occurring mutagen, quercetin, the pro-mutagen, rutin and of taxifolin. *Experienta*, 39(2), 198-200

[Takashi Yoshida](#), [Xiong Jin Zhe](#), [Takuo Okuda](#) (1989) Taxifolin apioside and davuriciin M₁, a hydrolysable tannin from *Rosa davurica* [☆] *Phytochemistry* 28(8), 2177–2181

“The structure of a dihydroflavonol glycoside from the roots of *Rosa davurica* has been characterized as (+)-taxifolin-3-O-β-d-apio-d-furanoside. A new hydrolysable tannin, davuriciin M₁, together with three known hydrolysable tannins, have also been isolated”.

Böhm H, Boeing H et al. (1998) Flavonole, Flavone und Anthocyane als natürliche Antioxidantien der Nahrung und ihre mögliche Rolle bei der Prävention chronischer Erkrankungen. In: *Zeitschrift für Ernährungswissenschaft.* Band 37, 147–163.

[Yea-Hwey Wang](#), [Wen-Yen Wang](#), [Chia-Che Chang](#) et al. (2006) Taxifolin ameliorates cerebral ischemia-reperfusion injury in rats through its anti-oxidative effect and modulation of NF-kappa B activation. *Journal of Biomedical Science* 13(1), 127-141

[Lee SB](#), [Cha KH](#), [Selenge D](#) et al. (2007) The Chemopreventive Effect of Taxifolin Is Exerted through ARE-Dependent Gene Regulation. *Biological and Pharmaceutical Bulletin* 30(6), 1074-1079

[Lin, Y](#), [Shi R](#), [Wang X](#), [Shen H-M](#) (2008) **Luteolin, a flavonoid with potentials for cancer prevention and therapy.** *Curr Cancer Drug Targets.* 8(7), 634–646. PMID: PMC2615542 NIHMSID: NIHMS82233 <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2615542/>

Sang Mi An, Hyo Jung Kim, Jung-Eun et al. (2008) Flavonoids, taxifolin and luteolin attenuate cellular melanogenesis despite increasing tyrosinase protein levels. *Phytotherapy Research* 22(9), 1200–1207

Yun Jeong Kim, Sun Eun Choi, Min Won Lee, Chung Soo Lee (2008) Taxifolin glycoside inhibits dendritic cell responses stimulated by lipopolysaccharide and lipoteichoic acid. *Journal of Pharmacy and Pharmacology* 60(11), 1465–1472 <http://onlinelibrary.wiley.com/doi/10.1211/jpp.60.11.0007/abstract>

Makena PS, Pierce SC, Chung K-T, Sinclair SE (2009) Comparative mutagenic effects of structurally similar flavonoids quercetin and taxifolin on tester strains *Salmonella typhimurium* TA102 and *Escherichia coli* WP-2 uvrA. *Environmental and Molecular Mutagenesis* 50(6), 451–459

<http://www.ncbi.nlm.nih.gov/pubmed/19326464>

“These results suggest that Quercetin (QT) but not Taxifolin (TF), could induce mutations in the presence or absence of rat liver S9 or Iron (Fe²⁺) and NGS in both tester strains by redox cycling and Fenton reactions to produce oxygen free radicals”.

Vandeputte OM, Kiendrebeogo M et al. (2011) The flavanone naringenin reduces the production of quorum sensing-controlled virulence factors in *Pseudomonas aeruginosa* PAO1. In: *Microbiology.* 157, 2120–2132

An J, Zuo GY et al. (2011) Antibacterial and synergy of a flavanonol rhamnoside with antibiotics against clinical isolates of methicillin-resistant *Staphylococcus aureus* (MRSA). In: *Phytomedicine.* 18, (11), 990–993

Y.Woo, S.Y.Shin, J.Hyun et al. (2012) Flavanones inhibit the colonogenicity of HCT116 colorectal cancer cells. In: *International journal of molecular medicine.* 29(3), 403-8

[Davies NM](#), [Yáñez JA](#) (2013) *Flavonoid Pharmacokinetics: Methods of Analysis, Preclinical and Clinical Pharmacokinetics, Safety, and Toxicology.* WILEY, ISBN-10: 0470578718 ISBN-13: 978-0470578711 http://www.amazon.de/Flavonoid-Pharmacokinetics-Analysis-Preclinical-Toxicology/dp/0470578718/ref=sr_1_3?s=books-intl-de&ie=UTF8&qid=1358079778&sr=1-3

Goc A, Niedzwiecki A, Rath M (2015) **In vitro evaluation of antibacterial activity of phytochemicals and micronutrients against *Borrelia burgdorferi* and *Borrelia garinii*.** *J Appl Microbiol*, 119: 1561–1572. doi:10.1111/jam.12970

Silymarin, Silibinin, milk thistle

Silibinin wird gelegentlich mit β -Lactam-Antibiotika kombiniert, das die antidotische Wirkung von Silibinin unterstützen soll. Quelle: <http://de.wikipedia.org/wiki/Silibinin>

Legalon[®] SIL ([Madaus](#)) (D, CH), Silimarit[®] ([Bionorica](#))

Zi X, Agarwal R (1999) Silibinin decreases prostate-specific antigen with cell growth inhibition via G1 arrest, leading to differentiation of prostate carcinoma cells: implications for prostate cancer intervention. PNAS. 96(13), 7490–7495

Nowak G. (2001) Pharmakologische Grundlagen für die Anwendung von Silymarin. Beilage zu: Forschende Komplementärmedizin und Klassische Naturheilkunde, Bd. 8, Heft 5.

Wellington K, Jarvis B. (2001) Silymarin; a review of its clinical properties in the management of hepatic disorders. Bio Drugs 15(7), 465-489

Mayer KE, Myers RP, Lee SS. (2005) Silymarin treatment of viral hepatitis: a systematic review. J Viral Hepat. 12(6), 559-67.

Kidd, P, Head, K. A (2005) Review of the Bioavailability and Clinical Efficacy of Milk Thistle Phytosome:A Silybin-Phosphatidylcholine Complex (Siliphos) Altern Med Rev 10(3),193-203

Ferenci P, Scherzer TM, Kerschner H, Rutter K, Beinhardt S, Hofer H, Schöniger-Hekele M, Holzmann H, Steindl-Munda P. (2008) Silibinin is a potent antiviral agent in patients with chronic hepatitis C not responding to pegylated interferon/ribavirin therapy. Gastroenterology. 135(5),1561-7.

Ganzert M, Felgenhauer N, Schuster T, Eyer F, Gourdin C, Zilker T. (2008) Amanita poisoning--comparison of silibinin with a combination of silibinin and penicillin. Dtsch Med Wochenschr. 133(44), 2261-7.

Saller R, Brignoli R, Melzer J, Meier R (2008) An updated systematic review with meta-analysis for the clinical evidence of silymarin. Forsch Komplementärmed 15, 9–20.

El-Kamary SS, Shardell MD, Abdel-Hamid M, Ismail S, El-Ateek M, Metwally M, Mikhail N, Hashem M, Mousa A, Aboul-Fotouh A, El-Kassas M, Esmat G, Strickland GT. (2009) A randomized controlled trial to assess the safety and efficacy of silymarin on symptoms, signs and biomarkers of acute hepatitis. Phytomedicine. 16(5), 391-400.

Handorean AM, Yang K, Robbins EW, Flaig TW, Iczkowski KA (2009) Silibinin suppresses CD44 expression in prostate cancer cells. American Journal of Translational Research.1(1), 80–86.

Pár A, Roth E, Miseta A, Hegedüs G, Pár G, Hunyady B, Vincze A. (2009) Effects of supplementation with the antioxidant flavonoid, silymarin, in chronic hepatitis C patients treated with peg-interferon + ribavirin. A placebo-controlled double blind study. Orv Hetil. 150(2), 73-9.

Payer BA, Reiberger T, Rutter K, Beinhardt S, Staettermayer AF, Peck-Radosavljevic M, Ferenci P. (2010) Successful HCV eradication and inhibition of HIV replication by intravenous silibinin in an HIV-HCV coinfecting patient. J Clin Virol. 49(2),131-3.

[Abenavoli L](#), [Capasso R](#), [Milic N](#), [Capasso F](#). (2010) Milk thistle in liver diseases: past, present, future. *Phytother Res.* 24(10), 1423-32. <http://www.ncbi.nlm.nih.gov/pubmed/20564545>

“The active complex of MT is a lipophilic extract from the seeds of the plant and is composed of three isomer flavonolignans (silybin, silydianin, and silychristin) collectively known as silymarin. Silybin is a component with the greatest degree of biological activity and makes up 50% to 70% of silymarin.... Silymarin acts as an antioxidant by reducing free radical production and lipid peroxidation, has antifibrotic activity and may act as a toxin blockade agent by inhibiting binding of toxins to the hepatocyte cell membrane receptors. In animals, silymarin reduces liver injury caused by acetaminophen, carbon tetrachloride, radiation, iron overload, phenylhydrazine, alcohol, cold ischaemia and Amanita phalloides. Silymarin has been used to treat alcoholic liver disease, acute and chronic viral hepatitis and toxin-induced liver diseases.”

Cecen E, Dost T, Culhaci N, Karul A, Ergur B, Birincioglu M. (2011) Protective effects of silymarin against doxorubicin-induced toxicity. *Asian Pac J Cancer Prev.* (10), 2697-704.

Loguercio C, Festi D (2011) Silybin and the liver: from basic research to clinical practice. *World J Gastroenterol.* 17(18), 2288-301.

Rutter K, Scherzer TM, Beinhardt S, Kerschner H, Stättermayer AF, Hofer H, Popow-Kraupp T, Steindl-Munda P, Ferenci P. (2011) Intravenous silibinin as 'rescue treatment' for on-treatment non-responders to pegylated interferon/ribavirin combination therapy. *Antivir Ther.* 16(8), 1327-33.

Fried MW, Navarro VJ, Afdhal N, Belle SH, Wahed AS, Hawke RL, Doo E, Meyers CM, Reddy KR; (2012) Silymarin in NASH and C Hepatitis (SyNCH) Study Group. Effect of silymarin (milk thistle) on liver disease in patients with chronic hepatitis C unsuccessfully treated with interferon therapy: a randomized controlled trial. *JAMA.* 308(3), 274-82.

Mengs U, Pohl RT, Mitchell T (2012) Legalon® SIL: the antidote of choice in patients with acute hepatotoxicity from amatoxin poisoning. *Current pharmaceutical biotechnology.* 13(10), 1964–1970

Moayedi B, Gharagozloo M, Esmaeil N, Maracy MR, Hoorfar H, Jalaeikar M. (2013) A randomized double-blind, placebo-controlled study of therapeutic effects of silymarin in β -thalassemia major patients receiving desferrioxamine. *Eur J Haematol.* 90(3), 202-9.

Gharagozloo M, Karimi M, Amirghofran Z. (2013) Immunomodulatory effects of silymarin in patients with β -thalassemia major. *Int Immunopharmacol.* 16(2), 243-7.

Wei F, Liu SK, Liu XY et al. (2013) Meta-analysis: silymarin and its combination therapy for the treatment of chronic hepatitis B. *Eur J Clin Microbiol Infect Dis.* 32(5), 657-69.

Cacciapuoti F, Scognamiglio A, Palumbo R, Forte R, Cacciapuoti F. (2013) Silymarin in non alcoholic fatty liver disease. *World J Hepatol.* 5(3), 109-13.

Adeyemo O, Doi H, Rajender Reddy K, Kaplan DE. (2013) Impact of oral silymarin on virus- and non-virus-specific T-cell responses in chronic hepatitis C infection. *J Viral Hepat.* 20(7), 453-62.

Anthocyane Wikipedia <http://de.wikipedia.org/wiki/Anthocyane>

Lazzè MC, Savio M, Pizzala R et al. (2004) Anthocyanins induce cell cycle perturbations and apoptosis in different human cell lines. *Carcinogenesis* 25 (8), 1427-1433. doi: 10.1093/carcin/bgh138
<http://carcin.oxfordjournals.org/content/25/8/1427.full?maxtoshow=&HITS=10&hits=10&RESULTFORMAT=&title=anthocyanin-&andorexacttitle=and&searchid=1&FIRSTINDEX=0&resourcetype=HWCIT>

u.a. Phenole, Polyphenole und Heteroaromate

Bennett RM, De Garmo P, Clark SR (1996) **A Randomized, Prospective, 12 Month Study To Compare The Efficacy Of Guaifenesin Versus Placebo In The Management Of Fibromyalgia** (reprint). *Arthritis and Rheumatism* 39 (10), 212, doi:10.1002/art.1780391402

“ Unfortunately this study was not able to confirm the anecdotal observations on the efficacy of guaifenesin in the treatment of fibromyalgia patients. “

Dicpinigaitis PV, Gayle YE (2003) **Effect of guaifenesin on cough reflex sensitivity.** *Chest*, 124(6), 2178-81 [Pubmed](#)

Bennett S, Hoffman N, Monga M (2004) **Ephedrine- and guaifenesin-induced nephrolithiasis.** *J Altern Complement Med*, 10(6), 967-9 [Pubmed](#)

Zang, Z, Cherryholmes, G, Mao, A, Marek, C, Longmate J, Kalos, M, St Amand, RP Shivley JE (2008) **High plasma levels of MCP-1, and Eotaxin provide evidence for an immunological basis of Fibromyalgia.** *J of Ex Bio Med* 233(9), 1171-80. doi: 10.3181/0712-RM-328. <http://www.ncbi.nlm.nih.gov/pubmed/18535166>

« High levels of MCP-1 (P<0.001) and eotaxin (P<0.01) were found in patients and family members compared to controls. Patients (56/92) treated with the single agent guaifenesin (>3 months) had higher levels of eotaxin than those not treated (P<0.01). ... Furthermore, the chemokine profile associated with FMS has direct effects on the migration of eosinophils and monocytes in the presence of mast cells, and skeletal muscle itself may secrete»

Dicpinigaitis PV, Gayle YE, Solomon G, Gilbert RD (2009) **Inhibition of cough-reflex sensitivity by benzonatate and guaifenesin in acute viral cough.** Respir Med, 103(6), 902-6 [Pubmed](#)

Storms W, Farrar JR (2009) **Guaifenesin in rhinitis.** Curr Allergy Asthma Rep, 9(2), 101-6 [Pubmed](#)

Amand RPSt, Craig Marek C (2009) **Fibromyalgie - die revolutionäre Behandlungsmethode durch die man vollständig von Beschwerden frei werden kann.** Hrsg. Dora Maier ISBN 978-3-8370-2307-7, S.49ff

[Corbett GT](#), [Roy A](#), [Pahan K](#). (2013) **Sodium phenylbutyrate enhances astrocytic neurotrophin synthesis via protein kinase C (PKC)-mediated activation of cAMP-response element-binding protein (CREB): implications for Alzheimer disease therapy.** J Biol Chem. 288(12), 8299-312. doi: 10.1074/jbc.M112.426536.. <http://www.ncbi.nlm.nih.gov/pubmed/23404502>

[Maisuria VB](#), [Hosseinidoust Z](#), [Tufenkji N](#) (2015) **Polyphenolic Extract from Maple Syrup Potentiates Antibiotic Susceptibility and Reduces Biofilm Formation of Pathogenic Bacteria.** [Appl Environ Microbiol.](#) pii: AEM.00239-15. [Epub ahead of print] <http://www.ncbi.nlm.nih.gov/pubmed/25819960>

Eman M. Khaled¹ & Nagwa A. Meguid², Geir Bjørklund et al. (2016) **Altered urinary porphyrins and mercury exposure as biomarkers for autism severity in Egyptian children with autism spectrum disorder.** Metab Brain Dis DOI 10.1007/s11011-016-9870-6 <https://www.ncbi.nlm.nih.gov/pubmed/27406246>

- ➔ **Guanfenesin Therapie (2016)** <http://www.guaifenesin.de/index.html#>
<http://www.fibromyalgie-guaifenesin.info/de/start/>
- ➔ **Fibromyalgie** http://www.erlebnishaft.de/chronic_fatigue.pdf
- ➔ **Biofilm Lyse** <http://www.xerlebnishaft.de/quorum.pdf>
- ➔ **Biofilme** <http://www.erlebnishaft.de/biofilmmed.pdf>

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