

Virus triggers chronic illnesses and chronic infections, health, and the so called autoimmune diseases, STING and cancer, vaccine side effects

Unter „Trigger“ (englisch für „Abzug, Auslöser“) versteht man Sinneseindrücke, die Erinnerungen an alte Erfahrungen in einer Art wecken, als ob sie noch einmal aufs Neue gemacht würden. ... Er [der Betroffene] reagiert oft so, als würde er sich in der alten, erinnerten Situation befinden. Quelle: <http://de.wikipedia.org/wiki/Schl%C3%BCsselreiz#Trigger>

Trigger, fixed action pattern, means sensations that awaken memories of old experiences in a way, as if they were made again and again. He [the party concerned] often reacts as if he would be in the old, reminded situation.

Source: http://en.wikipedia.org/wiki/Fixed_action_pattern

LEDERBERG J (1952) **Cell Genetics and Hereditary Symbiosis**. Reprint from PHYSIOLOGICAL REVIEWS 32(4), 403-430 <http://profiles.nlm.nih.gov/ps/access/BBABFO.pdf>
„The cell or the organism is not readily delimited in the presence of plasmids whose coordination may grade from the plasma genes to frank parasites. Many geneticists have pointed out further that the gene has displaced the cell as an ultimate unit of life (131, 219). How then shall we choose the boundaries of the gene-complex that constitutes an individual organism. S.425“

Lederberg J (1956) Genetic transduction. Am. Scientist 44, 264-280.

Lederberg J et al. (1956) Infection and heredity. Symp. Soc. Growth and Develop.14, 101-24.

Lederberg J (1957) Viruses, genes and cells. Bact. Rev. 11, 133-139.

Lederberg J (1959) View of Genetics. Nobel Lecture May 29 <http://profiles.nlm.nih.gov/ps/access/BBABHH.pdf>

The Joshua Lederberg Papers. Transduction, Plasmids, and the Foundation of Biotechnology
<http://profiles.nlm.nih.gov/ps/retrieve/Narrative/BB/p-nid/159>

DeFreitas E, Cheney PR, Koprowski H et al. (1991) **Retroviral sequences** related to human T-lymphotropic virus type II in patients with chronic fatigue immune dysfunction syndrome (Epstein-Barr virus syndrome/ infectious mononucleosis/ myalgic encephalomyelitis/ polymerase chain reaction/ in situ hybridization). Proc. Natl. Acad. Sci. USA
<https://www.ncbi.nlm.nih.gov/pubmed/1672770>

Holmes MJ (1992) **A Retrovirus** Aetiology for CFS?“ Chapter 33 (S. 319-324) in Hyde BM (H. & A.), Levine PH (H.), Goldstein JA (H. & A.). The Clinical and Scientific Basis for M.E./ CFS“, Nightingale Research Foundation (C. A.)
<https://www.google.de/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwi3i-nv6djbAhVFVxQKHQWKBVwQFggwMAA&url=http%3A%2F%2Fwww.me-ireland.com%2FRetrovirus3.pdf&usq=AOvVaw0HRDbe8PzvLkQslm-9FduX>

Natelson BH, Noul DE, Jenkins FJ et al. (1994) High titers of anti-Epstein-Barr virus DNA polymerase found in patients with **severe fatigue illness**. Journal of medical virology 42 (1), 42-6

Hulínská D, Roubalová K, Schramlová J (2003) Interaction of **Borrelia burgdorferi sensu lato** with **Epstein-Barr virus** in lymphoblastoid cells. Folia Biol (Praha) 49(1), 40-8. [Abstract](#)

Molina V, Shoenfeld Y (2005) Infection, vaccines and other environmental triggers of **autoimmunity**. Autoimmunity 38(3), 235-45. [Abstract](#)

Harel M, Aron-Maor A, Sherer Y, et al. (2005) The infectious etiology of the **antiphospholipid syndrome**: links between infection and autoimmunity. Immunobiology 210(10), 743-7. [Abstract](#)

Zampieri S, Ghirardello A, Iaccarino L, et al. (2006) **Polymyositis-dermatomyositis** and infections. Autoimmunity 39(3), 191-6. [Abstract](#)

Tsonis IA, Avrameas S, Moutsopoulos HM (2007) **Autoimmunity** and pathophysiology. J Autoimmun 29(4), 203-5. [Abstract](#)

Sairenji T, Nagata K (2007) Viral infections in chronic **fatigue syndrome**. Nihon Rinsho 65(6), 991-6. [Abstract](#)

Wyller VB (2007) The **chronic fatigue syndrome**--an update. Acta Neurol Scand Suppl 7-14. [Abstract](#)

Cave SF (2008) The history of vaccinations in the light of the **autism** epidemic. Altern Ther Health Med 14(6), 54-7. [Abstract](#)

Buskila D, Atzeni F, Sarzi-Puttini P (2008) Etiology of **fibromyalgia**: the possible role of infection and vaccination. Autoimmun Rev 8(1), 41-3. [Abstract](#)

Doria A, Canova M, Tonon M, et al. (2008) Infections as triggers and complications of **systemic lupus erythematosus**. Autoimmun Rev 8(1), 24-8. [Abstract](#)

Ralston SH (2008) Pathogenesis of **Paget's disease** of bone. Bone 43(5), 819-25. [Abstract](#)

Fakioglu E, Wilson SS, Mesquita PM, et al. (2008) Herpes simplex virus downregulates **secretory leukocyte protease inhibitor**: a novel immune evasion mechanism. J Virol 82(19), 9337-44. [Abstract](#)

Baio P, Brucato A, Buskila D, et al. (2008) **Autoimmune diseases** and infections: controversial issues. Clin Exp Rheumatol 26(1 Suppl 48), S74-80. [Abstract](#)

Avcin T, Canova M, Guilpain P, et al. (2008) **Infections, connective tissue diseases and vasculitis**. Clin Exp Rheumatol 26(1 Suppl 48), S18-26. [Abstract](#)

Feng H, Shuda M, Chang Y, Moore PS (2008) **Clonal integration of a polyomavirus in human Merkel cell carcinoma**. Science 319, 1096–100 [CrossRef](#) [MEDLINE](#) [PubMed Central](#)

Orbach H, Tanay A (2009) Vaccines as a trigger for **myopathies**. Lupus 18(13), 1213-6. [Abstract](#)

Zandman-Goddard G, Berkun Y, Barzilai O, et al. (2009) Exposure to Epstein-Barr virus infection is associated with mild **systemic lupus erythematosus disease**. Ann N Y Acad Sci 658-63. [Abstract](#)

Fierabracci A (2009) Unravelling the role of infectious agents in the pathogenesis of human **autoimmunity**: the hypothesis of the retroviral involvement revisited. Curr Mol Med 9(9), 1024-33. [Abstract](#)

Fong F, Illahi M (2009) **Neuralgic amyotrophy** associated with hepatitis E virus. Clin Neurol Neurosurg 111(2), 193-5. [Abstract](#)

Perron H, Bernard C, Bertrand JB, et al. (2009) Endogenous retroviral genes, Herpesviruses and gender in **Multiple Sclerosis**. J Neurol Sci 286(1-2), 65-72. [Abstract](#)

Duensing A, Spardy N, Chatterjee P, et al. (2009) **Centrosome** overduplication, chromosomal instability, and human papillomavirus oncoproteins. Environ Mol Mutagen 50(8), 741-7. [Abstract](#)

Ercolini AM, Miller SD (2009) **The role of infections in autoimmune disease**. Clin Exp Immunol 155(1), 1-15. [Abstract](#)

Lombardi VC, Ruscetti FW, Das Gupta J, Pfof MA, Hagen KS, Peterson DL, Ruscetti SK, Bagni RK, Petrow-Sadowski C, Gold B, Dean M, Silverman RH, Mikovits JA (2009) Detection of an infectious **retrovirus, XMRV**, in blood cells of patients with chronic fatigue syndrome", Science <https://www.ncbi.nlm.nih.gov/pubmed/19815723>

Lo S-C, Alter HJ et al. (2010) Detection of **MLV-related virus gene sequences** in blood of patients with chronic fatigue syndrome and healthy blood donors. PNAS, 107(36), 15874–15879. doi:[10.1073/pnas.1006901107](https://doi.org/10.1073/pnas.1006901107)
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2936598/>

Moore PS, Chang Y (2010) **Why do viruses cause cancer? Highlights of the first century of human tumour virology**. Nature Reviews 10, 878–89 [CrossRef](#) [MEDLINE](#) [PubMed Central](#)

Märker-Hermann E, Schmidt RE (2010) Infection: causes, triggers and complications of **rheumatic disease**. Z Rheumatol 69(10), 863. [Full Citation](#)

Perera RA, Samaranyake LP, Tsang CS (2010) Shedding dynamics of Epstein-Barr virus: A type 1 **carcinogen**. Arch Oral Biol 55(9), 639-47. [Abstract](#)

Kakalacheva K, Münz C, Lünemann JD (2010) Viral triggers of **multiple sclerosis**. Biochim Biophys Acta 1812(2), 132-40. [Abstract](#)

Ring J (2010) Virusinfekt, (Pseudo-) Allergie oder Autoimmunerkrankung? Nesselsucht; Gehen Sie der Ursache auf den Grund. MMW Fortschr. Medizin 38, 39-43 **Infekt assoziierte Urtikaria, Münchener Schema nach Braun-Falco**: Tetracyclin + Antimykotikum + Antihelminthikum + Probiotika.

Lünemann JD, Tintoré M, Messmer B, et al. (2010) Elevated Epstein-Barr virus-encoded nuclear antigen-1 immune responses predict conversion to **multiple sclerosis**. Ann Neurol 67(2), 159-69. [Abstract](#)

Comabella M, Montalban X, Horga A, et al. (2010) Antiviral immune response in patients with **multiple sclerosis** and healthy siblings. Mult Scler 16(3), 355-8. [Abstract](#)

Iskra S, Kalla M, Delecluse HJ, et al. (2010) Toll-like receptor agonists synergistically increase proliferation and activation of **B cells** by Epstein-Barr virus. J Virol 84(7), 3612-23. [Abstract](#)

Zhang L, Gough J, Christmas D, et al. (2010) Microbial infections in eight genomic subtypes of **chronic fatigue syndrome/myalgic encephalomyelitis**. J Clin Pathol 63(2), 156-64. [Abstract](#)

Larsen M, Sauce D, Deback C, et al. (2011) Exhausted cytotoxic control of Epstein-Barr virus in **human lupus**. PLoS Pathog 7(10), e1002328. [Abstract](#)

Sarid R, Gao SJ. (2011) Viruses and human **cancer**: From detection to causality. *Cancer Letters*, Vol. 305, June 28, 2011, p. 218. [\[Go to\]](#)

Delogu LG, Deidda S, Delitala G, et al. (2011) Infectious diseases and **autoimmunity**. *J Infect Dev Ctries* 5(10), 679-87. [Abstract](#)

Gan L, Miller FW (2011) State of the art: what we know about infectious agents and **myositis**. *Curr Opin Rheumatol* 23(6), 585-94. [Abstract](#)

Ariza ME, Williams MV (2011) A human endogenous retrovirus K dUTPase triggers a TH1, TH17 cytokine response: does it have a role in **psoriasis**? *J Invest Dermatol* 131(12), 2419-27. [Abstract](#)

Rodríguez-Pazos L, Gómez-Bernal S, Montero I, et al. (2011) **Erythema multiforme** photoinduced by paroxetine and herpes simplex virus. *Photodermatol Photoimmunol Photomed* 27(4), 219-21. [Abstract](#)

Kakalacheva K, Lünemann JD (2011) Environmental triggers of **multiple sclerosis**. *FEBS Lett* 585(23), 3724-9. [Abstract](#)

Wingerchuk DM (2011) Environmental factors in **multiple sclerosis**: Epstein-Barr virus, vitamin D, and cigarette smoking. *Mt Sinai J Med* 78(2), 221-30. [Abstract](#)

Muhammad S, Haasbach E, Kotchourko M, et al. (2011) Influenza virus infection aggravates **stroke outcome**. *Stroke* 42(3), 783-91. [Abstract](#)

Weseslindtner L, Nachbagauer R, Kundi M, et al. (2011) Human **cytomegalovirus** infection in lung transplant recipients triggers a CXCL-10 response. *Am J Transplant* 11(3), 542-52. [Abstract](#)

Mikovits JA et al. (2011) **Xenotropic Murine Leukemia Virus-related Virus-associated Chronic Fatigue Syndrome Reveals a Distinct Inflammatory Signature**. *In Vivo* 25(3), 307-14. <https://www.ncbi.nlm.nih.gov/pubmed/21576403>

Hanson MR et al. (2011) Detection of **MLV-like gag sequences** in blood samples from a New York state CFS cohort, *Retrovirology* <https://retrovirology.biomedcentral.com/articles/10.1186/1742-4690-8-S1-A234>

Casiraghi C, Shanina I, Cho S et al. (2012) Gammaherpesvirus Latency Accentuates EAE Pathogenesis: Relevance to Epstein-Barr Virus and **Multiple Sclerosis**. *PLoS Pathog* 8(5): e1002715. <http://www.plospathogens.org/article/info%3Adoi%2F10.1371%2Fjournal.ppat.1002715>

Montoya JG, Neely MN, Gupta S et al. (2012) Antiviral therapy of two patients with chromosomally-integrated human herpesvirus-6A presenting with **cognitive dysfunction**. *J Clin Virol*. <http://www.ncbi.nlm.nih.gov/pubmed/22770640>

Buskila D, Atzeni F, Sarzi-Puttini P (2008) Etiology of **fibromyalgia**: the possible role of infection and vaccination. *Autoimmun Rev* 8(1), 41-3. [Abstract](#)

Hou W, Gibbs JS, Lu X, et al. (2012) Viral infection triggers **rapid differentiation of human blood monocytes into dendritic cells**. *Blood* 119(13), 3128-31. [Abstract](#)

Liu X, Li Q, Dowdell K, et al. (2012) Varicella-Zoster virus ORF12 protein triggers phosphorylation of ERK1/2 and **inhibits apoptosis**. *J Virol* 86(6), 3143-51. [Abstract](#)

Matullo CM, O'Regan KJ, Curtis M, et al. (2011) CNS recruitment of CD8+ T lymphocytes specific for a peripheral virus infection triggers **neuropathogenesis** during polymicrobial challenge. PLoS Pathog 7(12), e1002462. [Abstract](#)

Liu J, Guo YM, Hirokawa M, et al. (2012) A synthetic double-stranded RNA, poly I:C, induces a **rapid apoptosis of human CD34(+) cells**. Exp Hematol 40(4), 330-41. [Abstract](#)

Tzartos JS, Khan G, Vossenkamper A, et al. (2012) Association of innate immune activation with **latent Epstein-Barr virus in active MS lesions**. Neurology 78(1), 15-23. [Abstract](#)

Le Negrate G (2012) Viral interference with innate immunity by preventing NF-κB activity. Cell Microbiol 14(2), 168-81. [Abstract](#)

[Rizzo R](#), [Gentili V](#), [Casetta I](#) (2012) Altered natural killer cells' response to **herpes virus infection in multiple sclerosis** involves KIR2DL2 expression. [J Neuroimmunol](#).

Pride DT, Salzman J, Relman DA. (2012) [Comparisons of CRISPRs and viromes in human saliva reveal bacterial adaptations to salivary viruses](#). Environmental Microbiology 14, 2564. doi:10.1111/j.1462-2920.2012.02775.x

Minot S et al. (2013) [Rapid evolution of the human gut virome](#). Proceedings of the National Academy of Sciences 110, 12450

Barr JJ et al. (2013) [Bacteriophage adhering to mucus provide a non–host-derived immunity](#). Proceedings of the National Academy of Sciences 110, 10771. doi: 10.1073/pnas.1305923110.

Duerkop BA, Hooper LV. (2013) [Resident viruses and their interactions with the immune system](#). Nature Immunology. 14, 654–659

Saey TH. (2013) [Viruses and mucus team up to ward off bacteria](#). Science News online.

[Teles RMB](#), [Graeber TG](#), [Krutzik SR](#) et al. (2013) Type I Interferon Suppresses Type II Interferon–Triggered Human Anti-Mycobacterial Responses. Scienceexpress DOI: 10.1126/science.1233665 <http://www.sciencemag.org/content/early/2013/02/27/science.1233665.abstract>

Il'inskikh EN, Il'inskikh IN, Semenov GA (2013) Cytogenetic Aberrations in Peripheral Blood Mononuclear Cells in Acute **Lyme Borreliosis** Patients. Cytology and Genetics 47(1), 44-52 Allerton Press Inc 2013 <http://www.ncbi.nlm.nih.gov/pubmed/23427613> [see the references]

Swei A, Russell BJ, Naccache SN, Kabre B, Veeraraghavan N et al. (2013) The Genome Sequence of **Lone Star Virus**, a Highly Divergent Bunyavirus Found in the Amblyomma americanum Tick. PLoS ONE, 8(4), e62083 DOI: [10.1371/journal.pone.0062083](http://dx.doi.org/10.1371/journal.pone.0062083) <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0062083>

[Virtanen J](#), [Wohler J](#), [Fenton K](#), [Reich D](#), [Jacobson S](#).(2013) Oligoclonal bands in **multiple sclerosis** reactive against two **herpes viruses** and association with magnetic resonance imaging findings. Mult Scler. [Epub ahead of print] <http://www.ncbi.nlm.nih.gov/pubmed/23722324>

[Garcia-Montojo M](#), [Dominguez-Mozo M](#), [Arias-Leal A](#) et al. (2013) The DNA copy number of **human endogenous retrovirus-W (MSRV-type)** is increased in **multiple sclerosis** patients and is influenced by gender and disease severity. [PLoS One](#). 8(1), e53623. doi: 10.1371/journal.pone.0053623. <http://www.ncbi.nlm.nih.gov/pubmed/23308264>

Carter CJ (2013) Susceptibility genes are enriched in those of the **HSV-1/host interactome** in psychiatric and neurological disorders. Pathogens and Disease. <http://onlinelibrary.wiley.com/doi/10.1111/2049-632X.12077/abstract>

[Sundqvist E](#), [Bergström T](#), [Daialhosein H](#), [Nyström M](#), [Sundström P](#), [Hillert J](#), [Alfredsson L](#), [Kockum I](#), [Olsson T](#). (2013) Cytomegalovirus seropositivity is **negatively associated** with multiple sclerosis. Mult Scler. [Epub ahead of print] <http://www.ncbi.nlm.nih.gov/pubmed/23999606>

Chung BK, Tsai K, Allan LL, Zheng DJ, Nie JC, Biggs CM, Hasan MR, Kozak FK, van den Elzen P, Priatel JJ, Tan R. (2013) Innate immune control of **EBV-infected B cells** by invariant natural killer T cells. Blood, 122 (15), 2600 DOI: [10.1182/blood-2013-01-480665](https://doi.org/10.1182/blood-2013-01-480665) <http://www.ncbi.nlm.nih.gov/pubmed/23974196>

Wang I-H, Suomalainen M, Andriasyan V, Kilcher S, Mercer J, Neef A, Luedtke NW, Greber UF. (2013) **Tracking Viral Genomes in Host Cells at Single-Molecule Resolution**. Cell Host & Microbe, 14 (4), 468 DOI: [10.1016/j.chom.2013.09.004](https://doi.org/10.1016/j.chom.2013.09.004)

Jones RP (2013) Widespread Outbreaks of a Subtle Condition Leading to Hospitalisation and Death. Epidemiol 3, 137. Page 13 of 13 Volume 3 • Issue 4 • 1000137 doi:10.4172/2161-1165.1000137 <http://www.hcaf.biz/2013/2161-1165-3-137.pdf>

“CMV is likely to be implicated at multiple levels, as direct agent, indirect risk factor and via opportunistic immune assault, as witnessed in patients in the intensive care unit. Evidence has been presented to show that CMV is capable of active (but generally subclinical) infection of a wide range of cell types and tissues and is more than capable of directly and indirectly causing the wide range of diagnoses observed to associated with increased health service contacts and deaths associated with the infectious outbreaks. Is it possible that the real need for the elderly is targeted anti-viral and/or immune restoring therapy to maintain optimum health and well-being [196] and/or CMV growth inhibitors such as Vitamin A, monolaurin and lactoferrin [197], rather than the reactive treatment of presenting symptoms which they currently receive? The role of the thymus requires far greater attention as does the differences in immune response between the two genders. Widespread disruption in western populations appears to be related to country- and/or racial-specific distribution of different CMV strains.”

[Bogdanos DP¹](#), [Smyk DS](#), [Invernizzi P](#) et al. (2013) **Infectome: a platform to trace infectious triggers of autoimmunity**. *Autoimmun Rev.* 12(7), 726-40. doi: 10.1016/j.autrev.2012.12.005. Epub 2012 Dec 22. <https://www.ncbi.nlm.nih.gov/pubmed/23266520>

[Vita](#) Department of Biological Science and Technology, Institute of Bioinformatics National Chiao Tung University, Hsinchu, Taiwan (2016) **Host-pathogen Interactome Databases** <http://www.polygenicpathways.co.uk/hpi.htm>

Shi M, Lin X-D, Tian J-H et al. (2016) **Redefining the invertebrate RNA virosphere**. Nature, doi:10.1038/nature20167 http://www.nature.com/nature/journal/vaop/ncurrent/full/nature20167.html?WT.feed_name=subjects_microbiology

Camille J, Tasiemski A, Gabriele Sorci G et al. (2017) **Infections and cancer: the “fifty shades of immunity” hypothesis**. BMC Cancer 17, 257 <https://doi.org/10.1186/s12885-017-3234-4> <https://bmccancer.biomedcentral.com/articles/10.1186/s12885-017-3234-4>

Vaccines and side effects

zur Hausen H (1996) **Papillomavirus infections - a major cause of human cancers**. Biochim Biophys Acta 1996, 1288(2): F55-78

Siegrist CM, Lewis AM, Eskola J et al. (2007) **HPV immunization in adolescent and young**

adults. *Pediatr Infect Dis J* (11), 979–984

[Arnheim-Dahlström L](#), [Pasternak B](#), [Svanström H](#), [Sparén P](#), [Hviid A](#) (2013) **Autoimmune, neurological, and venous thromboembolic adverse events after immunisation of adolescent girls with quadrivalent human papillomavirus vaccine in Denmark and Sweden: cohort study.** *BMJ*. 347, f5906. doi: 10.1136/bmj.f5906.
<http://www.ncbi.nlm.nih.gov/pubmed/?term=SDanmark+Sweden+hpv+vaccine+autoimmune>

[Langer-Gould A](#), [Qian L](#), [Tartof SY](#), [Brara SM](#), [Jacobsen SJ](#), [Beaber BE](#), [Sy LS](#), [Chao C](#), [Hechter R](#), [Tseng HF](#) (2014) **Vaccines and the risk of multiple sclerosis and other central nervous system demyelinating diseases.** *JAMA Neurol*. 71(12),1506-13. doi: 10.1001/jamaneurol.2014.2633. <http://www.ncbi.nlm.nih.gov/pubmed/25329096>

[Le Houézec D](#) (2014) **Evolution of multiple sclerosis in France since the beginning of hepatitis B vaccination.** *Immunol Res*. 60(2-3), 219-25. doi: 10.1007/s12026-014-8574-4.
<http://www.ncbi.nlm.nih.gov/pubmed/25395338> <http://link.springer.com/article/10.1007%2Fs12026-014-8574-4#page-1>
<http://healthimpactnews.com/2014/new-study-hepatitis-b-vaccination-in-france-sparked-a-wave-of-new-cases-of-ms/>
« **The application of the Hill's criteria to these data indicates that the correlation between hepatitis B vaccine and multiple sclerosis may be causal.** »

Feiring B et al. (2017) **HPV vaccination and risk of chronic fatigue syndrome/myalgic encephalomyelitis: A nationwide register-based study from Norway.** *Vaccine*
<https://doi.org/10.1016/j.vaccine.2017.06.031>
https://ars.els-cdn.com/content/image/1-s2.0-S0264410X17308083-gr1_lrg.jpg
„**No indication of increased risk of CFS/ME following HPV vaccination was observed among girls in the first 6 birth cohorts offered HPV vaccine through the national immunisation programme in Norway.**“

STING (Stimulator of Interferon Genes)

Ishikawa H, Barber GN (2008) **STING an Endoplasmic Reticulum Adaptor that Facilitates Innate Immune Signaling.** *Nature* 2,455(7213), 674-678
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2804933/>

Hornung, V, Latz, E. (2010) **Intracellular DNA recognition.** *Nature Rev. Immunol*. 10, 123–130 <http://www.ncbi.nlm.nih.gov/pubmed/20098460>
“**The recognition of nucleic acids is one strategy by which cells can detect infectious agents**”.

Ahn J, Gutman D, Saijo S, Barber GN (2012) **STING manifests self DNA-dependent inflammatory disease.** *Proc. Natl Acad. Sci. USA* 109, 19386–19391
<http://www.nature.com/nature/journal/vnfv/ncurrent/full/nature12306.html>
“**The endoplasmic-reticulum-resident protein STING is critically required for the initiation of type I interferon signalling upon detection of cytosolic DNA of both exogenous and endogenous origin**”.

Ablasser A, Goldeck M, Cavlar Tet al. (2013) **cGAS produces a 2'-5'-linked cyclic dinucleotide second messenger that activates STING.** *Nature* 498, 380-384,
[Abstract](#) <http://www.nature.com/nature/journal/vnfv/ncurrent/full/nature12306.html>
„**We found that the presence of this 2'-5' linkage was required to exert potent activation of human STING. Moreover, we show that cGAS first catalyses the synthesis of a linear 2'-5'-linked dinucleotide, which is then subject to cGAS-dependent cyclization in a second step through a 3'-5' phosphodiester linkage. This 13-membered ring structure defines a novel class of second messenger molecules, extending the family of 2'-5'-linked antiviral biomolecules.**“

Ablasser A, Schmid-Burgk JL, Hemmerling I et al. (2013) **Cell intrinsic immunity spreads to bystander cells via the intercellular transfer of cGAMP.** *Nature*, Band 503, 530-534, [Abstract](#)

- **Immunsuppressive Virusarten**
<http://www.erlebnishaft.de/immunsuppressivvirus.pdf>
- **Pathogenitätsfaktoren**
http://www.xerlebnishaft.de/bakt_pathogenitaetsfaktoren.pdf
- **Virus-Bakterien-Immunität** <http://www.erlebnishaft.de/virusbaktimmun.pdf>
- **Methylierung** <http://www.erlebnishaft.de/methylierung.pdf>
- **Danger model, immunity** http://www.erlebnishaft.de/danger_model.pdf
- **Virulenz Inhibitoren** http://www.kabilahsystems.de/virulenz_inhibitoren.pdf
- **Borrelien, Entzündung, Lymphom, Neoplasma**
http://www.xerlebnishaft.de/borrel_inflam_lymphom_neopl.pdf
- **Pattern matching** http://www.erlebnishaft.de/selbst_muster_nano.pdf

- **Aufstieg und Fall von XMRV, The rise and fall of XMRV**
http://www.xerlebnishaft.de/x_xmr.pdf

- **Covid-19 Frühtherapie, April / Mai 2020**
http://www.kabilahsystems.de/covid-19_erkrankung_fruetherapie.pdf

[Bernt - Dieter Huismans](#) Letzte Revision Mai 2020 www.Huismans.click



Back to top: <http://www.erlebnishaft.de/virustriggers.pdf>