

Bibliographie : Cannabinoïdes et TSA/TED/psychoses infantiles.

Dr Christian Sueur, GRECC, mars 2019.

(2^e version)

1. ARAN A., CASSUTO H., LUBOTZKY : Cannabidiol Based Medical Cannabis in Children with Autism- a Retrospective Feasability Study (P3.318), *Neurology Genetics*, 2018, 90 (15).
http://n.neurology.org/content/90/15_Supplement/P3.318
2. ARAN A., CASSUTO H., LUBOTZKY A., WATTAD N., HAZAN E. : Brief Report : Cannabidiol-Rich Cannabis in Children with Autism Spectrum Disorder and Severe Behavioral Problems-A Retrospective Feasability Study, *Journal of Autism and Developmental Disorders*, 2018 Oct 31.
Doi : 10.1007/s10803-018-3808-2
3. BARCHEL D., STOLAR O., De-HAAN T., ZIV-BARAN T., SABAN N., FUCHS D.O., KOREN G., BERKOVITCH M. : Oral Cannabidiol Use in Children With Autism Spectrum Disorder to Treat Related Symptoms and Co-morbidities, *Frontiers in Pharmacology*, 2019, volume 9, article 1521, 5 p.
Doi : 10.3389/fphar.2018.01521
4. BHATTACHARYYA S. : Cannabidiol As A Treatment In Different Stages Of Psychosis- Efficacy And Mechanisms, *Schizophrenia Bulletin*, 2018, 44(suppl_1), S27-S27.
5. BELZUNG C, LEMAN S., VOURC'H, ANDRES C. : Rodents model for autism : a critical review, *Drug Discovery Today : Disease Models*, 2005, 2, 93-101.
6. BERGAMASHI M.M., QUEIROZ R.H., ZUARDI A.W., CRIPPA J.A. : Safety and side effects of cannabidiol, a cannabis sativa constituent, *Current Drug Safety*, 2011, 6, 4, 237-249.
7. BOU KHALIL R. : Would some cannabinoids ameliorate symptoms of autism ?, *European Child and Adolescent Psychiatry*, 2012, 21, 237-238.
8. BRIGIDA A.L., SCHULTZ S., CASCONE M. et al. : Endocannabinoid Signal Dysregulation in Autism Spectrum Disorders : A Correlation Link between Inflammatory State and Neuro-Immune Alterations, *International Journal of Molecular Sciences*, 2017, 18, 1425, 13 p.
9. BUSQUETS-GARCIA A., GOMIS-GONZALES M., GUEGAN T. et al. : Targeting the endocannabinoid system in the treatment of fragile X syndrome, *Nature Medicine*, 2013, 19, 5, 603-607. Doi : 10.1038/nm.3127
www.nature.com/articles/nm.3127
10. CAMPOS A.C. et al. : Plastic and Neuroprotective Mechanisms Involved in the Therapeutic Effects of Cannabidiol in Psychiatric Disorders, *Frontiers in Pharmacology*, 2017.
11. CAREAGA M., Van De WATER J., ASHWOOD P. : Immune dysfunction in autism : a pathway to treatment, *Neurotherapeutics*, 2010, 7, 3, 283-292.
12. CAREAGA M., ASHWOOD P. : Autism spectrum disorder : from immunity to behavior, *Methods in Molecular Biology*, 2012, 934, 219-240.
13. CHAKRABARTI B., PERSICO A., BATTISTA N., MACCARONE M. : Endocannabinoid Signaling in Autism, *Neurotherapeutics*, 2015, 12, 837-847.

14. CONSROE P.: Brain Cannabinoid systems as targets for the therapy of neurological disorders, *Neurobiological Diseases*, 1998, 5, 534-541.
15. CSABA F., R.C. MALENKA, T.C. SÜDHOF: Autism-Associated Neuroligin-3 Mutations Commonly Disrupt Tonic Endocannabinoid Signaling, *Neuron*, 2013.
Doi : 10.1016/j.neuron.2013.02.036
16. DEVINSKY O. : Trial of Cannabidiol for drug-resistant seizures in the Dravet Syndrome, *New England Journal of Medicine*, 2017, 376, 2011-2020.
17. DJEZZAR S. : Evaluation du potentiel d'abus et de dépendance et du potentiel thérapeutique du cannabidiol (Avis), ANSM, séance n°11, *Commission des Stupéfiants et des Psychotropes, Compte rendu de la séance du 25 juin 2015*, p17/25.
18. DOENNI V.M., GRAY J.M., SONG C.M., HILL M.N., PITTMAN Q.J. : Deficient adolescent social behavior following early-life inflammation is ameliorated by augmentation of anandamide signaling, *Brain, Behavior, and Immunity*, 2016, 58, 237-247.
Doi : 10.1016/j.bbi.2016.07.152
19. FOGACA M.V. et al. : Cannabinoids, Neurogenesis and Antidepressant Drugs : is there a Link ?, *Current Neuropharmacology*, 2013, 11, (3), 263-275.
20. FÖLDY C., MALENKA R.C., SUDHOF T.C. : Autism-associated neuroligine-3 mutations commonly disrupt tonic endocannabinoid signaling, *Neuron*, 2013, 78, 3, 498-509.
Doi : 10.1016/j.neuron.2013.02.036
21. GARBETT K., EBERT P.J., MITCHELL A. et al. : Immune transcriptome alterations in the temporal cortex of subjects with autism, *Neurobiology of Disease*, 2008, 30, 303-311.
22. GRINSPOON L. : A Novel Approach to the Symptomatic Treatment of Autism, *O'Shaughnessy's*, Summer 2010.
23. GROTHENHERMEN F. : Chanvre en Médecine. Redécouverte d'une plante médicinale. Guide pratique des applications thérapeutiques du Cannabis, du THC et du CBD, Edition Solanacée, 2017.
24. GROTHENHERMEN F. : CBD. Un cannabinoïde au vaste potentiel thérapeutique, Edition Solanacée, Suisse, 2018, p 14.
25. GU B. : Cannabidiol provides viable treatment opportunity for multiple-neurological pathologies of autism spectrum disorder, *Global Drugs and Therapeutics*, Review article, 2017, 2, 6, 1-4
Doi : 10.15761/GDT.1000134
26. HABIB S.S., AL-REGAIEY K., BASHIR S., IQBAL M. : Role of Endocannabinoids on Neuroinflammation in Autism Spectrum Disorder Prevention, *Journal of Clinical and Diagnostic Research*, 2017, 11, 6, 3p.
27. HADLAND S.E., KNIGHT J.R., HARRIS S.K. : Medical Marijuana : Review of the Science and Implications for Developmental Behavioral Pediatric Practice, *Journal of Developmental and Behavioral Pediatrics*, 2015, 36, 2, 115-123.
28. HAHN B. : The Potential of Cannabidiol Treatment for Cannabis Users with recent-onset psychosis, *Schizophrenia Bulletin*, 2018, 44, (1), 46-53.
29. HAUSMAN-KEDEM M., MENASCU S., KRAMER U. : Efficacy of CBD-enriched medical cannabis for treatment of refractory epilepsy in children and adolescents – An observational, longitudinal study, *Brains & Development*, 2018, in press.

30. IFFLAND K., GROTHENHERMEN F. : An update on safety and side effects of Cannabidiol : a review of clinical data and relevant animal studies, *Cannabis and Cannabinoid Research*, 2017, 2, 1, 139-154.
31. INGOLD F.R., SUEUR C., KAPLAN C. : Contribution à une exploration des propriétés thérapeutiques du Cannabis, *Annales Médico-Psychologiques*, 2015, 173, 5, 453-459.
32. IUVONE et al. : Neuroprotective effect of Cannabidiol, a non-psychoactive component from Cannabis sativa, on beta-amyloid-induced toxicity in PC12 cells, *Journal of Neurochemistry*, 2004, 89, 1, 134-141.
33. JIANG W. et al. : Cannabinoids promote embryonic and adult hippocampus neurogenesis and produce anxiolytic and antidepressant-like effects, *Journal of Clinical Investigation*, 2005, 115, (11), 3104-3116.
34. JUNG K.M., SEPERS M., PIOMELLI D., O.J. MANZONI et al. : Uncoupling of the endocannabinoid signalling complex in a mouse model of fragile X syndrome, *Nature Communications*, 2012, 3, 1080.
35. KANO M. et al. : Endocannabinoid-mediated control of synaptic transmission, *Physiological Reviews*, 2009, 89, 1, 309-380.
Doi : 10.1152/physrev.00019.2008
36. KARANIAN D.A., KARIM S.L., WOOD J.T., WILLIAMS J.S., et al. : Endocannabinoid enhancement protects against kainic acid-induced seizures and associated brain damage, *Journal of Pharmacology and Experimental Therapeutics*, 2007, 322, 3, 1059-1066.
37. KARHSON D.S. et al. : Plasma anandamide concentrations are lower in children with autism spectrum disorder, *Molecular Autism*, 2018, 12, 9, 18.
38. KOPPEL B.S., BRUST J.C., FIFE T. et al. : Systematic review : efficacy and safety of medical marijuana in selected neurologic disorders : report of the Guideline Development Subcommittee of the American Academy of Neurology, *Neurology*, 2014, 82, 1556-1563.
39. KRUGER T., CHRISTOPHERSEN E. : An Open Label Study of the Use of Dronabinol (Marinol) in the Management of Treatment-resistant Self-Injurious Behavior in 10 Retarded Adolescent Patients, *Journal of Developmental and Behavioral Pediatrics*, 2006, 27, 5, 433.
40. KURZ R., BLAAS K. : Use of dronabinol (delta-9-THC) in autism : A prospective single-case-study with an early infantile autistic child, *Cannabinoids*, 2010, 5, 4, 4-6.
41. LAPRAIRIE R.B., BAGHER A.M. et al. : Cannabidiol is a negative allosteric modulator of the cannabinoid CB1 receptor, *British Journal of Pharmacology*, 2015, 172, 20, 4790-4805.
42. LEWEKE F.M. et al. : Cannabidiol as an antipsychotic agent, *European Psychiatry*, 2007, 22, 1.
43. LEWEKE F.M., PIOMELLI D. et al. : Cannabidiol enhances anandamide signaling and alleviates psychotic symptoms of schizophrenia, *Translational Psychiatry*, 2012, 2, 3, e94.
44. LEWEKE F.M., MUELLER J.K., LANGE B., FRITZ S. et al. : Role of the Endocannabinoid System in the Pathophysiology of Schizophrenia : Implications for Pharmacological Intervention, *CNS Drug*, 18 July 2018, doi.org/10.1007/s40263-018-0539-z.

45. LI X., CHAUHAN A., SHEIKH A.M., PATIL S. et al. : Elevated immune response in the brain of autistic patients, *Journal of Neuroimmunology*, 2009, 207, (1-2), 111-116.
46. MANERA C., ARENA C., CHICCA A. : Synthetic cannabinoid receptor agonist and antagonists : implication in CNS disorders, *Recent Patents on CNS Drug Discovery*, 2015, 10, 2 142-156.
47. McGuire P., ROBSON P. et al. : Cannabidiol (CBD) as an adjunctive Therapy in Schizophrenia : A multicenter Randomized Controlled Trial, *American Journal of Psychiatry*, 2018 March, 175, 3.
48. MEAD J., ASHWOOD P. : Evidence supporting an altered immune response in ASD, *Immunology Letters*, 2015, 163, 1, 49-55.
49. MECHA M., MECHOULAM R. et al. : Cannabidiol protects oligodendrocyte progenitor cells from inflammation-induced apoptosis by attenuating endoplasmic reticulum stress, *Cell Death and Disease*, 2012, 3.
50. MILES K. : Marijuana-like Chemical May Help Autism and X Fragile Syndrome Symptoms, 2012.
51. MORGAN C.J.A., CURRAN V.: Effects of cannabidiol on schizophrenia-like symptoms in peoples who use cannabis, *British Journal of Psychiatry*, 2008, 192, 306-307.
52. NADAL X., Del RIO C., CASANO S., MUÑOZ E. et al. : Tetrahydrocannabinolic acid is a potent PPAR γ agonist with neuroprotective activity, *British Journal of Pharmacology*, 2017, 174, 23, 4263-4276, doi : 10.1111/bph.14019.
53. NAGAYAMA T. et al. : Cannabinoids and neuroprotection in global and focal cerebral ischemia and in neuronal cultures, *Journal of Neurosciences*, 1999, 19, 2987-2995.
54. ONAIVI E.S., BENNO R., HALPERN T., MEHANOVIC M. et al. : Consequences of Cannabinoid and Monoaminergic System Disruption in a Mouse model of Autism Spectrum Disorders, *Current Neuropharmacology*, 2011, 9, 209-214.
Doi : 10.2174/157015911795017047
55. PAZOS M.R., MOHAMMED N., LAFUENTE H. et al : Mechanisms of cannabidiol neuroprotection in hypoxi-ischemic newborn pigs : role of 5HT(1A) and CB2 receptors, *Neuropharmacology*, 2013, 71, 282-291.
56. PERTWEE R.G. : The diverse CB1 and CB2 receptor pharmacology of three plant cannabinoids : Δ9-tetrahydrocannabinol, cannabidiol and Δ9-tetrahydrocannabivarin, *British Journal of Pharmacology*, 2008, 153, 2, 199-215.
57. PERTWEE R.G. : Receptors and Channels Targeted by Synthetics Cannabinoid receptor agonists and antagonists, *Current Medicinal Chemistry*, 2010, 17, 14, 1360-1381.
58. PERTWEE R.G. editor : Handbook of Cannabis, Oxford University Press, United Kingdom, 2016.
59. POLEG S., GOLUBCHIK P., OFFEN D., WEIZMAN A. : Cannabidiol as a suggested candidate for treatment of autism spectrum disorder *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 2019, 8, 89, 90-96,
doi: 10.1016/j.pnpbp.2018.08.030
60. PUIGHERMANAL E. et al. : Cannabinoid modulation of hippocampal long-term memory is mediated by mTOR signaling, *Nature Neuroscience*, 2009, 12, 1152-1158. doi: 10.1038/nn.2369
61. RANGANATHAN M., de SOUZA D. et al. : Efficacy of Cannabidiol in the treatment of early psychosis, *Sixth Biennial SIRS Conference*, 2018.

62. RIMLAND B., Marijuana thérapeutique : un traitement intéressant pour l'autisme?, *Autism Research Review International*, 2003, 17, 1 3-4.
63. ROHLEDER C., MULLER J. K., LANGE B., LEWEKE F.M. : Cannabidiol as a Potential New Type of an Antipsychotic. A critical Review of the Evidence, *Frontiers in Pharmacology*, 2016.
64. SALA M., BRAIDA D., LENTINI D. et al. : Pharmacological rescue of impaired cognitive flexibility, social deficits, increased aggression, and seizure susceptibility in oxytocin receptor null mice : a neurobehavioral model of autism, *Biological Psychiatry*, 2011, 69, 875-882.
65. SALGADO C.A., CASTELLANOS D. : Autism Spectrum Disorder and Cannabidiol : Have We Seen This Movie Before, *Global Pediatric Health*, 2018, 5, 1-5.
DOI : 10.1177/2333794X18815412 , journals.sagepub.com/home/gph
66. SEEMAN P. : Cannabidiol is a partial agonist at dopamine D2-High receptors, predicting its antipsychotic clinical dose, *Translational Psychiatry*, 2016.
67. SCUDERY C. ET AL. : Cannabidiol in medicine : a review of its therapeutic potential in CNS disorders, *Phytotherapy Research*, 2009, 23, 5, 597-602.
68. SINISCALCO D., SAPONE A., GIORDANO C et al. : Cannabinoid receptor type 2, but not type 1, is up-regulated in peripheral blood mononuclear cells of children affected by autistic disorders, *Journal of Autism and Developmental Disorders*, 2013, 43, 2686-2695.
69. SUEUR C. : Etat des lieux de la recherche sur les capacités thérapeutiques des « substances hallucinogènes » au 21^e siècle, *Psychotropes*, 2017, 23, 3, 125-163.
70. SUEUR C., INGOLD F.X. : Le Cannabis en Médecine (Neurologie et Psychiatrie) – Revue de la littérature, *GRECC*, 2018.
<https://www.grecc.org/publications/dossiers-scientifiques/le-cannabis-en-medecine-neurologie-et-psychiatrie-revue-de-la-litterature/>
71. SUEUR C. : Les Cannabinoïdes dans l'Autisme, *GRECC*, aout 2018
<https://www.grecc.org/publications/dossiers-scientifiques/les-cannabinoides-dans-lautisme/>
72. TARTAGLIA N., BONN_MILLER M., HAGERMAN R. : Treatment of Fragile X Syndrome with Cannabidiol : A Case Series Study and Brief Review of the Literature, *Cannabis and Cannabinoid Research*, 2019, 4, 1, 3-9.
Doi : 10.1089/can.2018.0053
73. VARGAS D.L., NASCIMBENE C., KRISHNAN C., ZIMMERMAN A.W., PARDO C.A. : Neuroglial activation and neuroinflammation in the brain of patients with autism, *Annals of Neurology*, 2005, 57, 1, 67-81.
74. VEZYROGLOU K., CROSS J.H. : Targeted Treatment in Childhood Epilepsy Syndromes, *Epilepsy, Current treatment Options Neurology*, 2016, 18, 29, 12 pp.
75. WEI D., LEE D., COX C., KARSTEN C., PIOMELLI D. et al. : Endocannabinoid signaling mediates oxytocin-driven social reward, *PNAS*, 2015, 112, 5, 14084-14089.
76. XU N., LI X., ZHONG Y. : Inflammatory cytokines : potential biomarkers of immunologic dysfunction in autism spectrum disorders, *Mediators of Inflammation*, 2015.
77. ZHANG L., ALGER B.E. : Enhanced endocannabinoid signaling elevates neuronal excitability in fragile X syndrome, *Journal of Neuroscience*, 2010, 30, 5724-5729.
78. ZUARDI A.W. et al. : Effects of cannabidiol in animal models predictive of antipsychotic activity, *Psychopharmacology*, 1991, 104, 2, 260-264.

79. ZUARDI A.W. et al.: Antipsychotic effects of cannabidiol, *Journal of Clinical Psychiatry*, 1995, 56, 10, 485-486.
80. ZUARDI A.W. et al.: Cannabidiol monotherapy for treatment-resistant schizophrenia, *Journal of Psychopharmacology*, 2006, 20, 5, 683-686.
81. ZUARDI A.W. et al.: Cannabidiol, a cannabis sativa constituent, as an antipsychotic drug, *Brazilian Journal of Medical and Biological Research*, 2006, 39, 421-429.
82. ZUARDI A.W., CRIPPA J.A.S. et al. : A critical review of the Antipsychotic Effects of Cannabidiol : 30 Years of a translational Investigation, *Current Pharmaceutical Design*, 2012, 18, 5131-5140.
83. ZUARDI A.W., de SOUZA CRIPPA J.A., HALLACK J.A. et al. : The Anxiolytic Effects of Cannabidiol (CBD), December 2017.

<https://www.cbc.ca/news/canada/toronto/mom-of-daughter-with-severe-autism-says-cannabis-therapy-is-heaven-sent-1.4440936>

<https://eu.usatoday.com/story/news/world/2017/04/25/marijuana-pot-treatment-children-autism-cannabis-oil/100381156>

<https://www.blog-cannabis.com/2018/02/20/autisme-cannabis-traitement-therapie/>

<https://ansm.sante.fr/S-informer/Travaux-de-l-Agence-Europeenne-des-Medicaments-EMA-Comite-des-medicaments-orphelins-COMP/Avis-et-recommandations-du-Comite-des-medicaments-orphelins-COMP-de-l-Agence-europeenne-des-medicaments-EMA-de-septembre-2014-Point-d-information>

<https://ansm.sante.fr/S-informer/Travaux-de-l-Agence-Europeenne-des-Medicaments-EMA-Comite-des-medicaments-orphelins-COMP/Avis-et-recommandations-du-Comite-des-medicaments-orphelins-COMP-de-l-Agence-europeenne-des-medicaments-EMA-de-juin-2015>

Essai Cliniques :

- *ClinicalTrials.gov Identifier : NCT03202303 :*

Cannabidivarın (CBDV) vs. Placebo in Children With Autism Spectrum Disorder (ASD)

(2017-2019),

Eric HOLLANDER, Montefiore Medical Center, United States Departement of Defense / GW Pharmaceuticals, USA.

- *ClinicalTrials.gov Identifier : NCT02956226*

Cannabinoids for Behavioral Problems on Children With ASD (CBA)

(2016-2018)

Dr Adi ARAN, Shaare Zedek Medical Center, Israël.