

RESEARCH ON HOMEOPATHY



Votre santé mérite le plus grand respect

HOUSEKEEPING

Before we start:

We will start at 8 pm EST!

The webinar may last more than 1 hour.

It is recorded and will be posted (audio & video)

- www.boironusa.com/hcp/hcp-education/

Everybody is muted: Please use the question panel to ask questions

The chat is on: I will not monitor it.

Download the handouts!

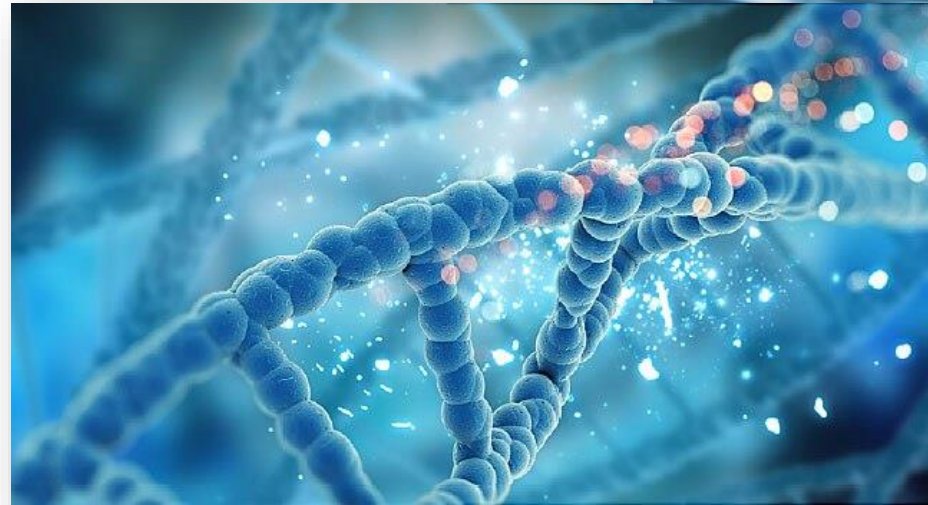


Polls

RESEARCH ON HOMEOPATHY

3 main challenges:

- Homeopathic Dilutions
- Mode (s) of Action
- Placebo Effect?

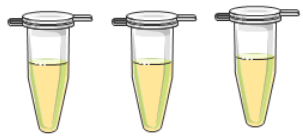


PHYSICAL STUDIES

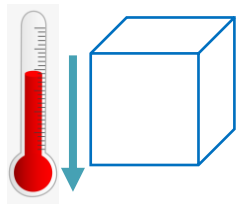


Thermoluminescence of Homeopathic Solutions

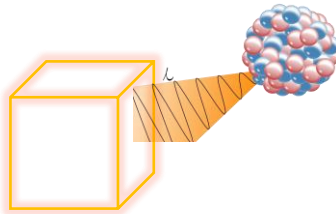
Studies on the thermoluminescence of homeopathic dilutions shows a difference between succussed water and homeopathic dilutions. Their physical properties are different.



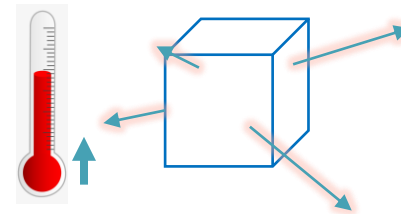
Homeopathic Dilutions of
Sodium chloride NaCl 15C
Lithium chloride LiCl 15C
Heavy Water D2O 15C



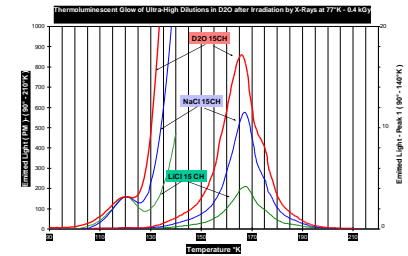
Dilutions are frozen



Dilutions are irradiated with gamma rays



Dilutions are slowly reheated and photons are emitted

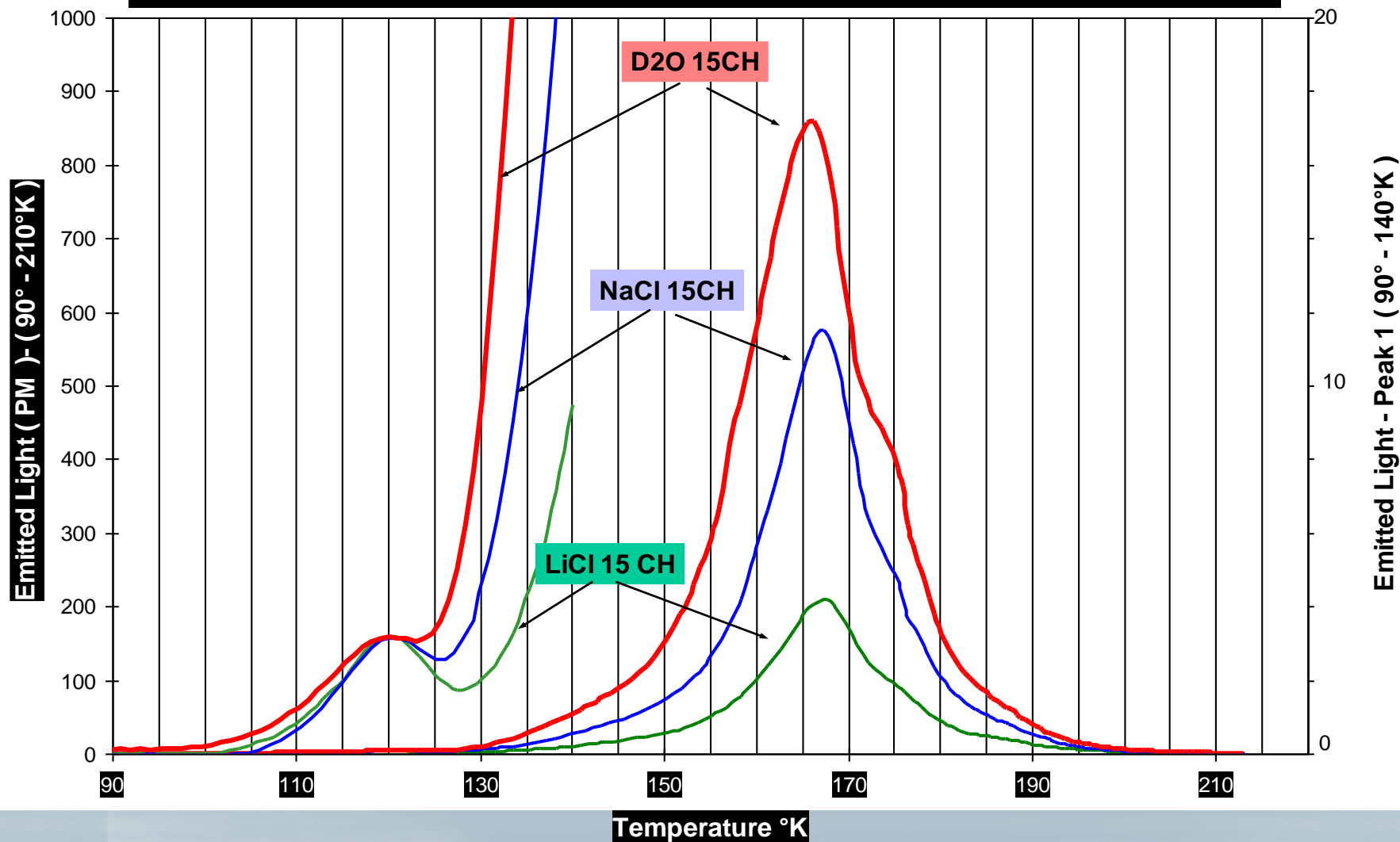


Spectrum of thermoluminescence

Sources :

Rey L. Can low-temperature thermoluminescence cast light on the nature of ultra-high dilutions? Homeopathy. 2007 Jul;96(3):170-4.
Rey L. Thermoluminescence of ultra-high dilutions of lithium chloride and sodium chloride. Physica A, 2003

Thermoluminescent Glow of Ultra-High Dilutions in D2O after Irradiation by X-Rays at 77°K - 0.4 kGy



Sources :

Rey L. Can low-temperature thermoluminescence cast light on the nature of ultra-high dilutions? Homeopathy. 2007 Jul;96(3):170-4.

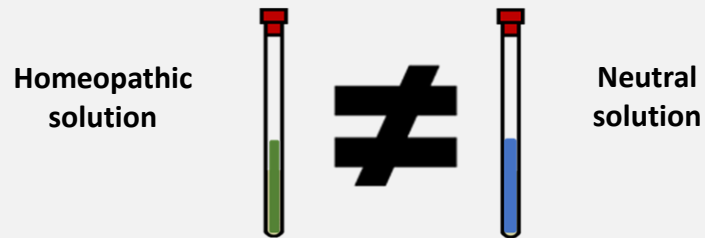
Rey L. Thermoluminescence of ultra-high dilutions of lithium chloride and sodium chloride. Physica A, 2003

Differentiation between homeopathic solutions

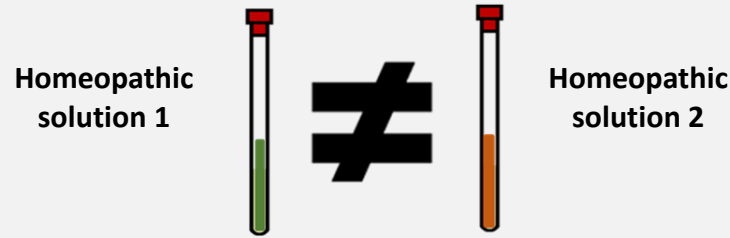
Fundamental studies in physics show that homeopathic solutions have **distinct characteristics**^{7,8,9,10,11}:

Physical measurement techniques (NMR, thermoluminescence, spectroscopy, etc.) make it possible to observe a **difference** between:

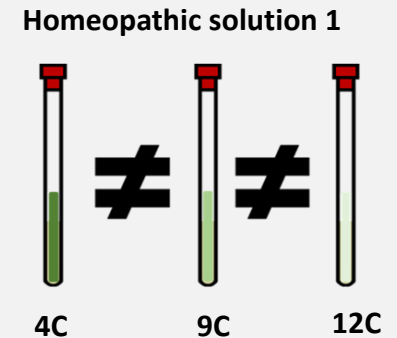
- A homeopathic solution and a neutral solution such as water (the dilution solvent)^{7,8,9}



- Certain homeopathic solutions (different starting materials)^{8,9}



- Homeopathic solutions of different dilution scales (4C, 9C, 12C, etc.), for the same starting material^{10,11}



Sources:

7. [Cartwright SJ. Solvatochromic dyes detect the presence of homeopathic potencies. Homeopathy. 2016 Feb;105\(1\):55-65.](#)
8. [Rey L. Thermoluminescence of ultra-high dilutions of lithium chloride and sodium chloride, Physica A: Statistical Mechanics and its Applications 2003;323:67-74.](#)
9. [Bell IR, Lewis DA 2nd, Brooks AJ, et al. Gas discharge visualization evaluation of ultramolecular doses of homeopathic medicines under blinded, controlled conditions. J Altern Complement Med. 2003 Feb;9\(1\):25-38.](#)
10. [Demangeat JL, Gries P, Poitevin B et al. Low-Field NMR water proton longitudinal relaxation in ultrahighly dilute aqueous solutions of Silica-Lactose prepared in glass material for pharmaceutical use. Applied Magnetic Resonance 2004;26:465-481.](#)
11. [Klein SD, Sandig A, Baumgartner S, et al. Differences in Median Ultraviolet Light Transmissions of Serial Homeopathic Dilutions of Copper Sulfate, Hypericum perforatum, and Sulfur. Evid Based Complement Alternat Med. 2013;2013:370-609.](#)

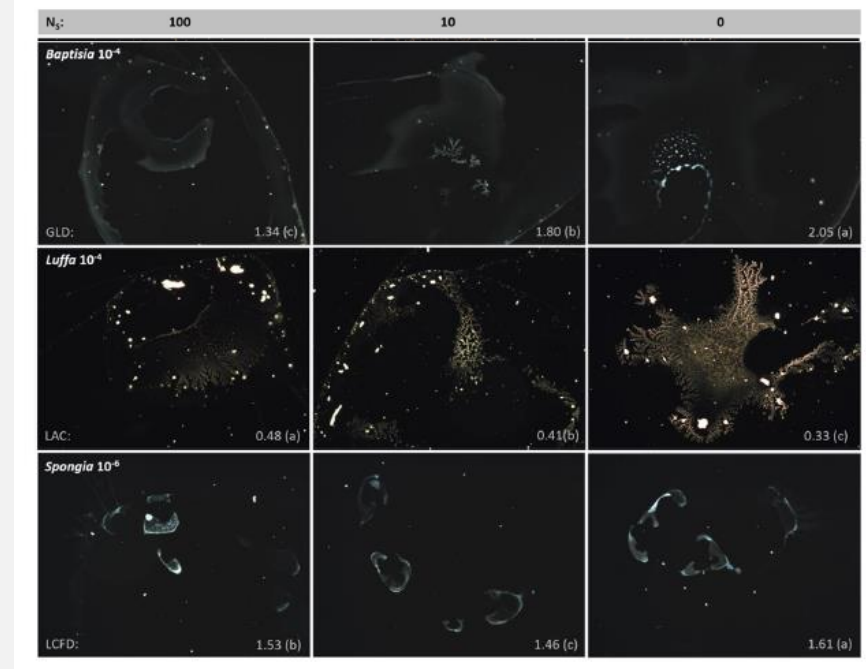
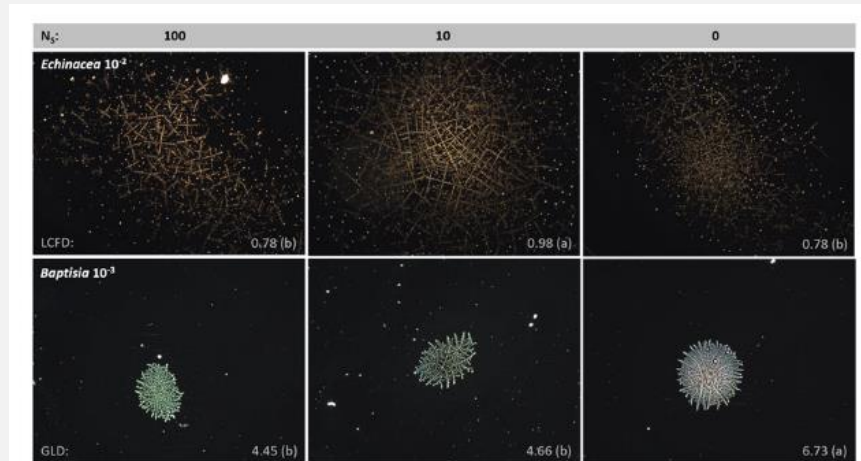
Other references:

[Demangeat JL. NMR water proton relaxation in unheated and heated ultrahigh aqueous dilutions of histamine: Evidence for an air-dependent supramolecular organization of water, Journal of Molecular Liquids 2009;144:32-39.](#)
[Baumgartner S, Wolf M, Skrabal P, et al. High-field 1H T\(1\) and T\(2\) NMR relaxation time measurements of H2O in homeopathic preparations of quartz, sulfur, and copper sulfate. Naturwissenschaften. 2009 Sep;96\(9\):1079-89.](#)
[Klein SD, Sandig A, Baumgartner S, et al. Differences in Median Ultraviolet Light Transmissions of Serial Homeopathic Dilutions of Copper Sulfate, Hypericum perforatum, and Sulfur. Evid Based Complement Alternat Med. 2013;2013:370609.](#)

Learn more: the importance of succussion

Fundamental studies in physics show, through various techniques such as [nuclear magnetic resonance \(NMR\)](#) [droplet evaporation method](#), the importance of succussion^{1,4}

- Succussion, which is involved in the manufacturing process of homeopathic solutions, is essential to differentiate homeopathic solutions from simply diluted solutions.^{1,2,3}

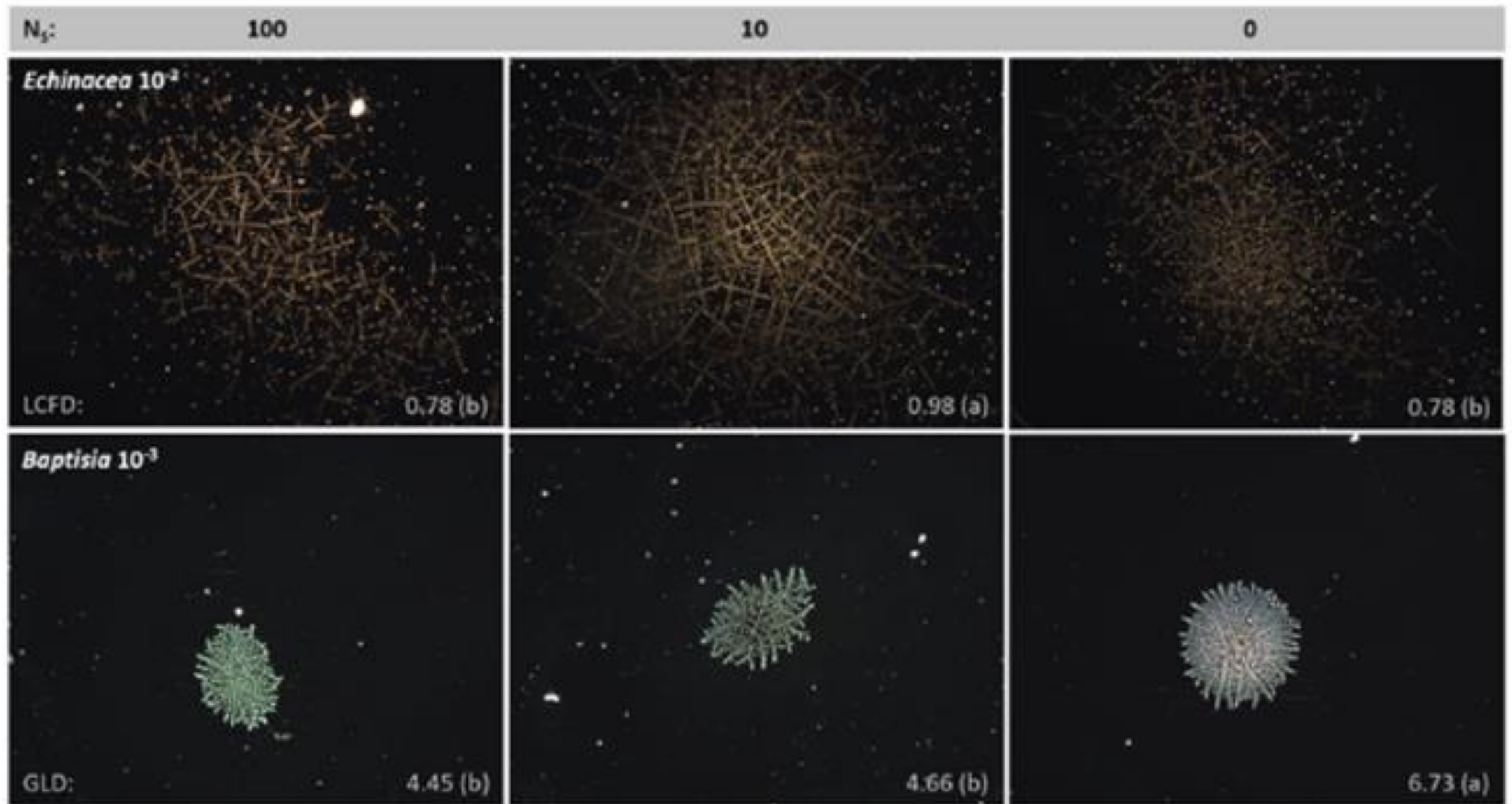


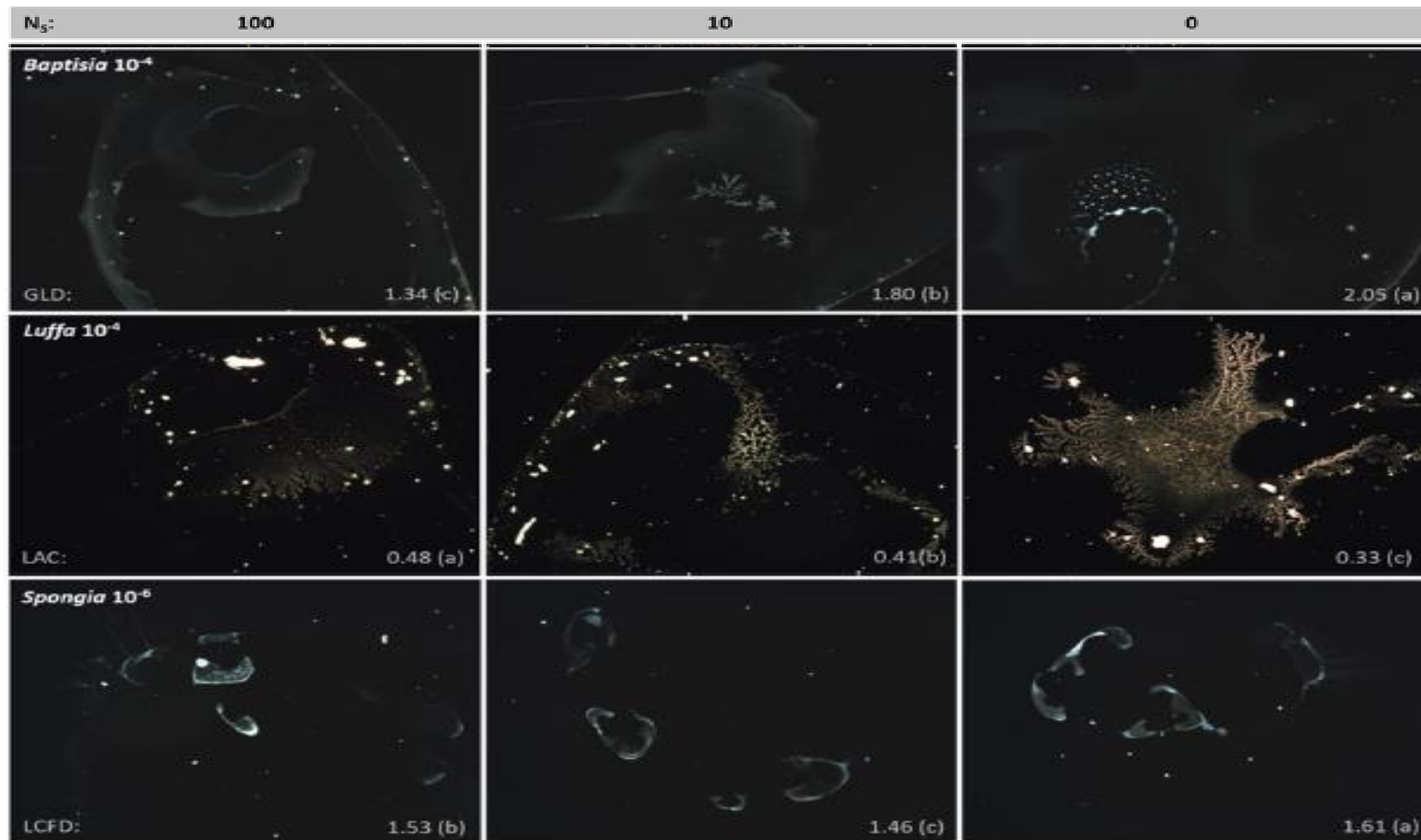
Succussion induces a difference in the structures observed in the evaporated droplets

Sources:

1. Kokornaczyk MO, Würtenberger S, Baumgartner S. Impact of succussion on pharmaceutical preparations analyzed by means of patterns from evaporated droplets. Sci Rep. 2020 Jan 17;10(1):570.
2. Betti L, Trebbi G, Kokornaczyk MO, Nani D, et al. Number of succussion strokes affects effectiveness of ultra-high-diluted arsenic on in vitro wheat germination and polycrystalline structures obtained by droplet evaporation method. Homeopathy 2017 Feb;106(1):47-54







BIOLOGICAL STUDIES





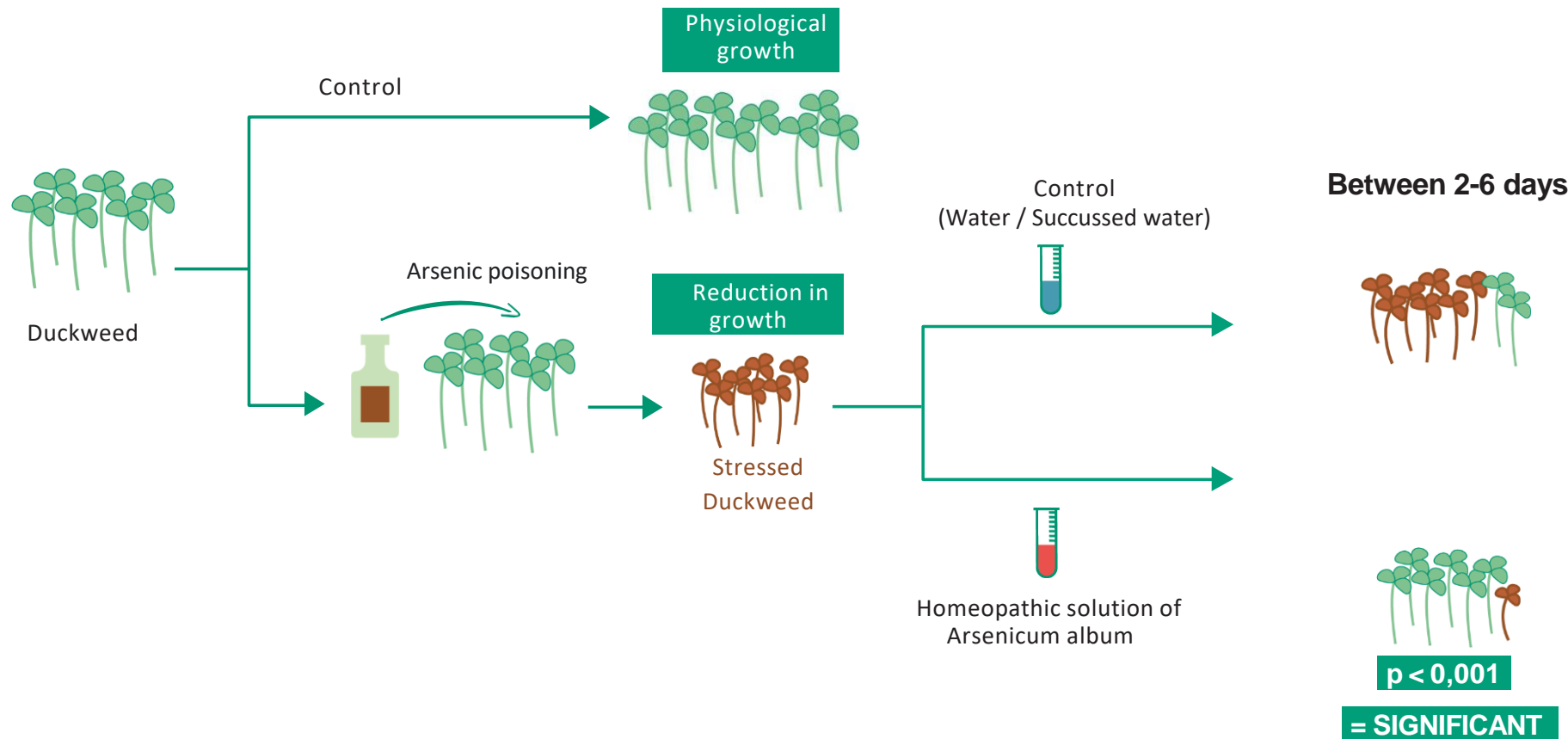
Duckweed
Lemna minor



Biological effects of homeopathic solutions

In-vitro laboratory studies show that homeopathic solutions have **biological effects on previously stressed plants**¹⁶

- A homeopathic solution of Arsenicum album protects duckweed from the effect of arsenic poisoning by restoring its growth.



These results are obtained using high dilutions, for example with a solution of Arsenicum album 33X ($p < 0.05$) (beyond the theoretical presence of molecules).

Increase in growth compared to the control

$p < 0,001$

= SIGNIFICANT

Sources:

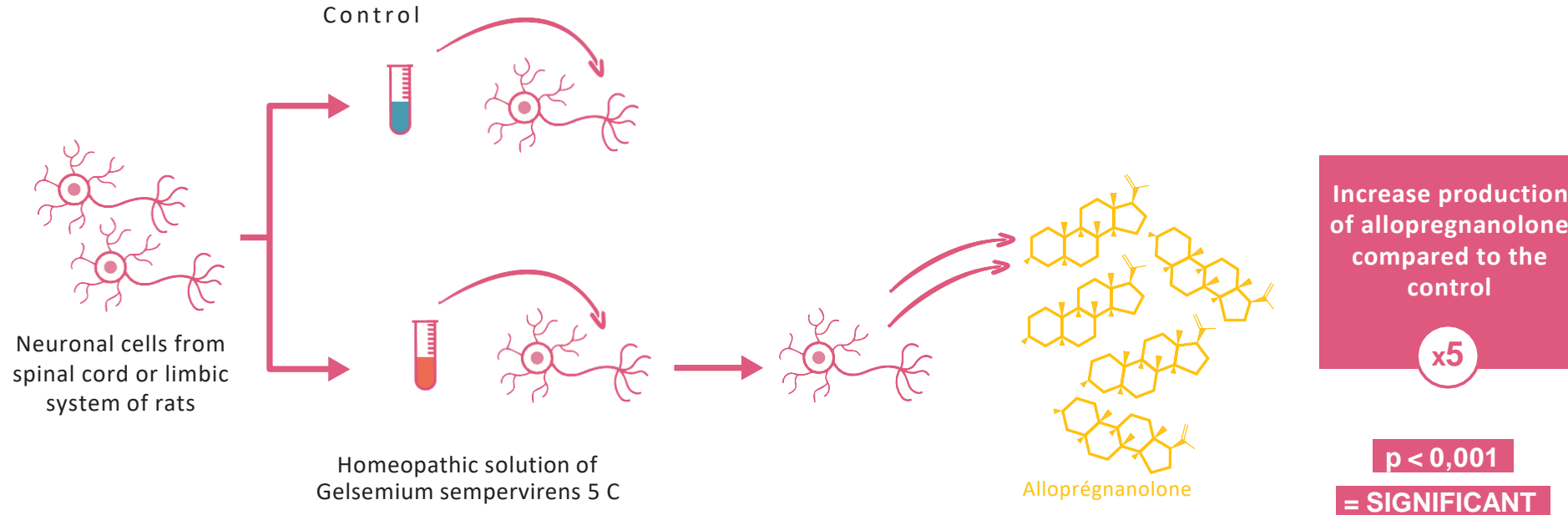
16. Jäger T, Scherr C, Simon M, et al. Effects of homeopathic arsenicum album, nosode, and gibberellic acid preparations on the growth rate of arsenic-impaired duckweed (*Lemna gibba* L.). ScientificWorldJournal. 2010 Nov 4;10:2112-29



The biological effects of homeopathic solutions on cell models

***In vitro* laboratory studies show that homeopathic solutions stimulate the production of hormones by neuronal cells²⁶:**

- For example, a homeopathic solution of *Gelsemium sempervirens* (5C) stimulates the production of Allopregnanolone, a hormone (GABAergic modulator) that reduces anxiety and pain, by neuronal cells^{26*}



*** : $p < 0,001$

** : $p < 0,01$

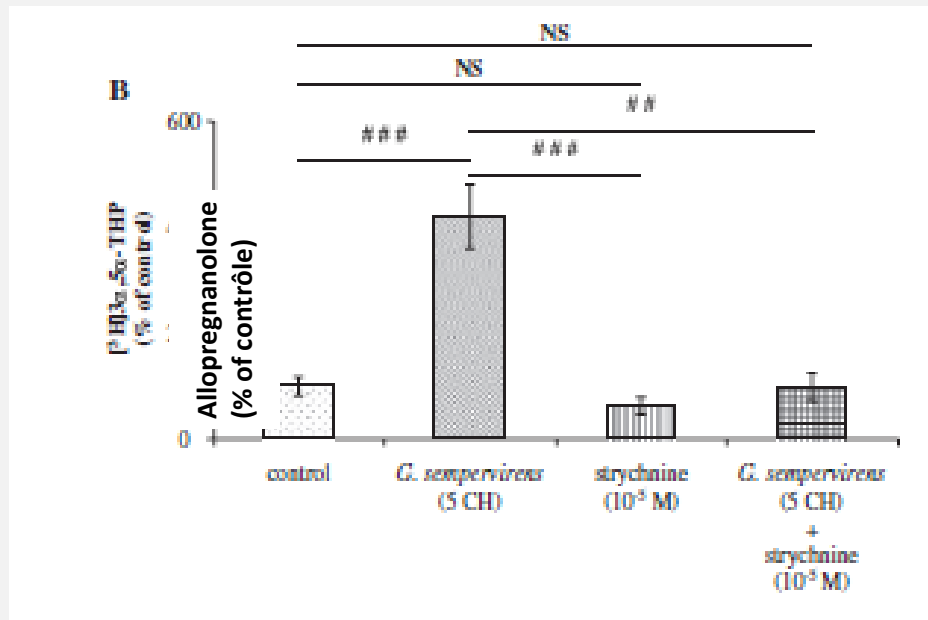
Sources:

26. [Venard C, Boujedaini N, Mensah-Nyagan AG, Patte-Mensah C. Comparative Analysis of Gelsemine and Gelsemium sempervirens Activity on Neurosteroid Allopregnanolone Formation in the Spinal Cord and Limbic System. *Evid Based Complement Alternat Med.* 2011;2011:407617.](#)

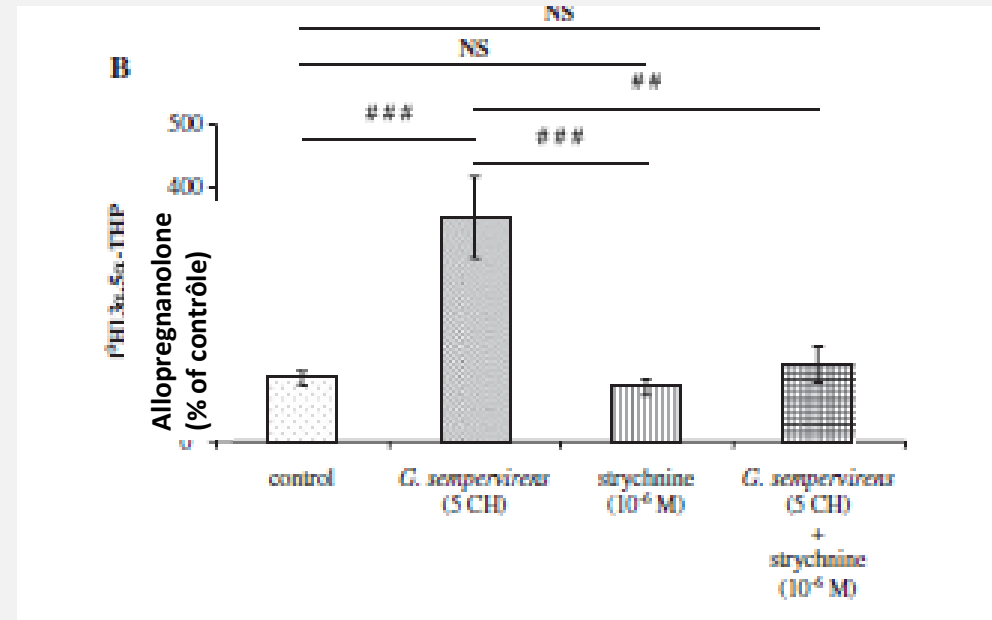
The biological effects of homeopathic solutions on cell models

***In vitro* laboratory studies show that homeopathic solutions stimulate the production of hormones by neuronal cells²⁶:**

2. The effect of homeopathic solution of *Gelsemium sempervirens* is inhibited in the presence of strychnine 10^{-5} M



Rat spinal cord neuronal cells



Rat limbic system neuronal cells

La strychnine est un antagoniste du Gly-R récepteur, un récepteur trouvé sur les cellules neuronales et impliqué dans la gestion de la douleur, du stress et de l'anxiété

*** : $p < 0,001$

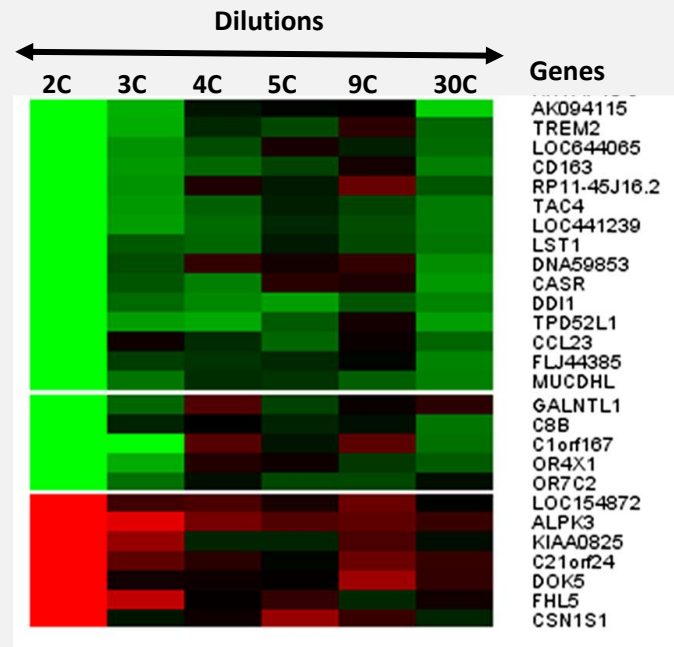
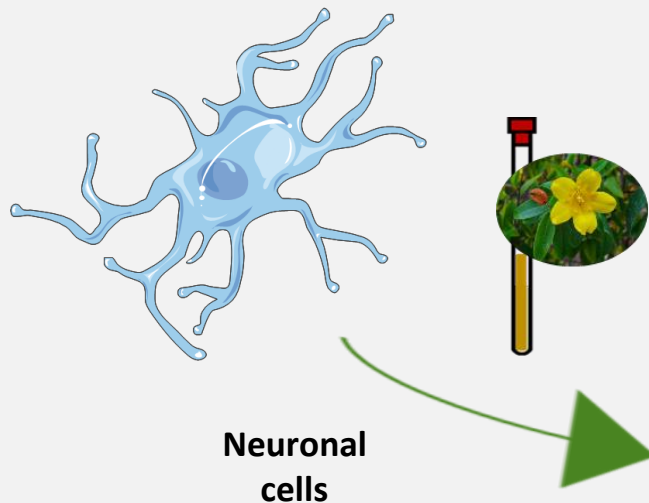
** : $p < 0,01$

The biological effects of homeopathic solutions on cell models

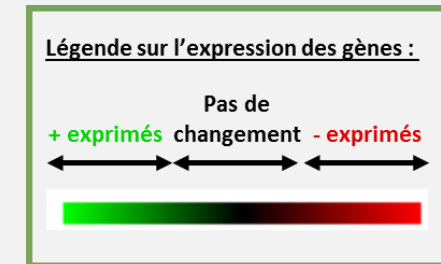
***In vitro* laboratory studies** show that homeopathic solutions modulate **the expression of genes in cells**^{21,23,27}

Homeopathic solutions can cause a modification of the expression profile of cellular genes:

- For example, *Gelsemium sempervirens* (2C) causes the repression of genes in neuronal cells^{23,27}



Example of a gene class (cluster) whose expression profiles can be modified in the presence of homeopathic solutions of *Gelsemium sempervirens* (Significant for 2C ($p < 0.005$) and trend for other dilution scales)



Sources:

23. [Oliosio D, Marzotto M, Moratti E, Brizzi M, Bellavite P. Effects of Gelsemium sempervirens L. on pathway-focused gene expression profiling in neuronal cells. J Ethnopharmacol. 2014;153\(2\):535-539.](#)
27. [Marzotto M, Oliosio D, Brizzi M, Tononi P, Cristoforetti M, Bellavite P. Extreme sensitivity of gene expression in human SH-SY5Y neurocytes to ultra-low doses of Gelsemium sempervirens. BMC Complement Altern Med. 2014;14:104.](#)

Other references:

de Oliveira CC, de Oliveira SM, Goes VM, Probst CM, Krieger MA, Buchi Dde F. Gene expression profiling of macrophages following mice treatment with an immunomodulator medication. J Cell Biochem. 2008;104(4):1364-1377.



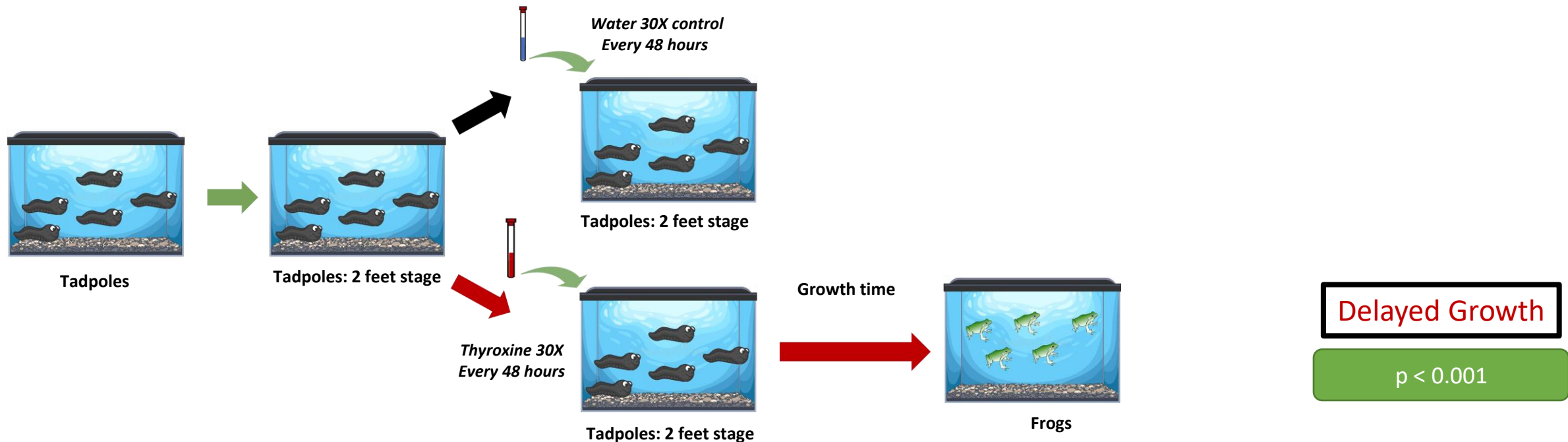
Polls

The biological effects of homeopathic solutions on animal models

In vivo laboratory studies show that homeopathic solutions influence **the growth process of frogs**³⁰:

- Thus, a homeopathic solution of Thyroxine* **slows down the development of tadpoles into frogs.**

Results of 3 experiments carried out in independent laboratories



A total of 1,941 tadpoles were treated with the homeopathic solution of Thyroxine 30X

Sources:

30. [Endler PC, Scherer-Pongratz W, Harrer B, Lingg G, Lothaller H. Amphibians and ultra high diluted thyroxine--further experiments and re-analysis of data. *Homeopathy*. 2015;104\(4\):250-256. doi:10.1016/j.homp.2015.10.001](#)

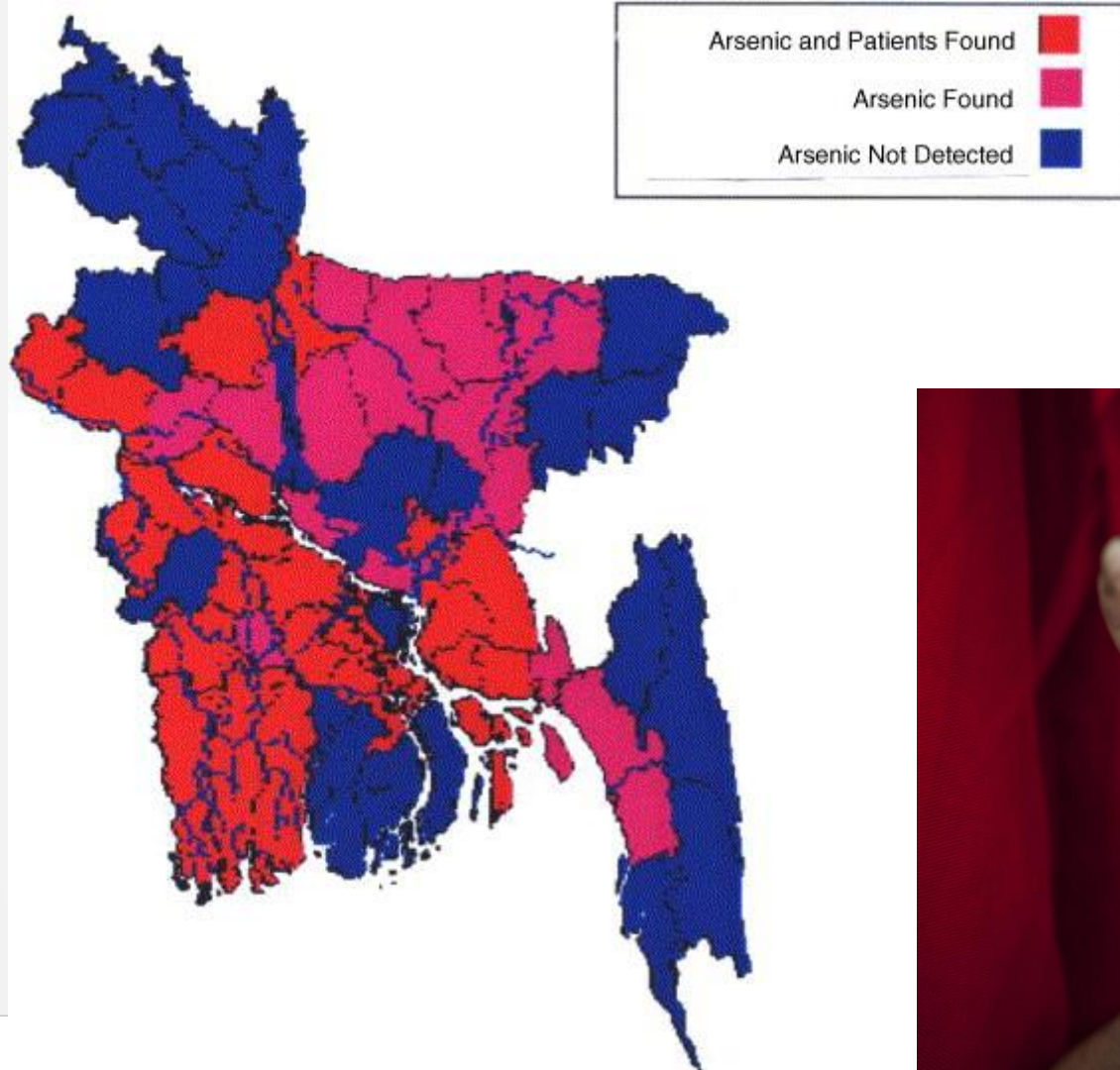
Other references:

Endler, P.C. & Pongratz, W. & Wijk, Roeland & Kastberger, Gerald & Haidvogel, M.. (1991). Effects of Highly Diluted Succussed Thyroxine on Metamorphosis of Highland Frogs. Berlin J on Research in Homeopathy. 1. 151-160

CLINICAL STUDIES



ARSENIC



Clinical Research on Arsenic Poisoning

Homeopathic dilutions of Arsenic trioxide stimulate the elimination of Arsenic in patients affected by ground water contamination

- Double-blind, randomized clinical study on villagers from Bangladesh are exposed to arsenic-contaminated ground water. They received either Arsenicum album 30C or an identical placebo.
- In group I (n=55), during the first 11 days, the concentration of As in the urines of treated patient was superior to the placebo group.
- In group II (n=48), all patients received the verum for 10 days, then stopped for 15 days. 3 cycles were completed. Blood concentrations of As declined on 30th day.
- Toxicity denoting enzymes showed steady decline and were normal 2 months after administration of the drug.

Sources:

Kunda Bukhsh, et al. Can Homeopathic Arsenic Remedy Combat Arsenic Poisoning In Human Exposed to Groundwater Arsenic Contamination? *eCAM*. 2005;2(4)537-548

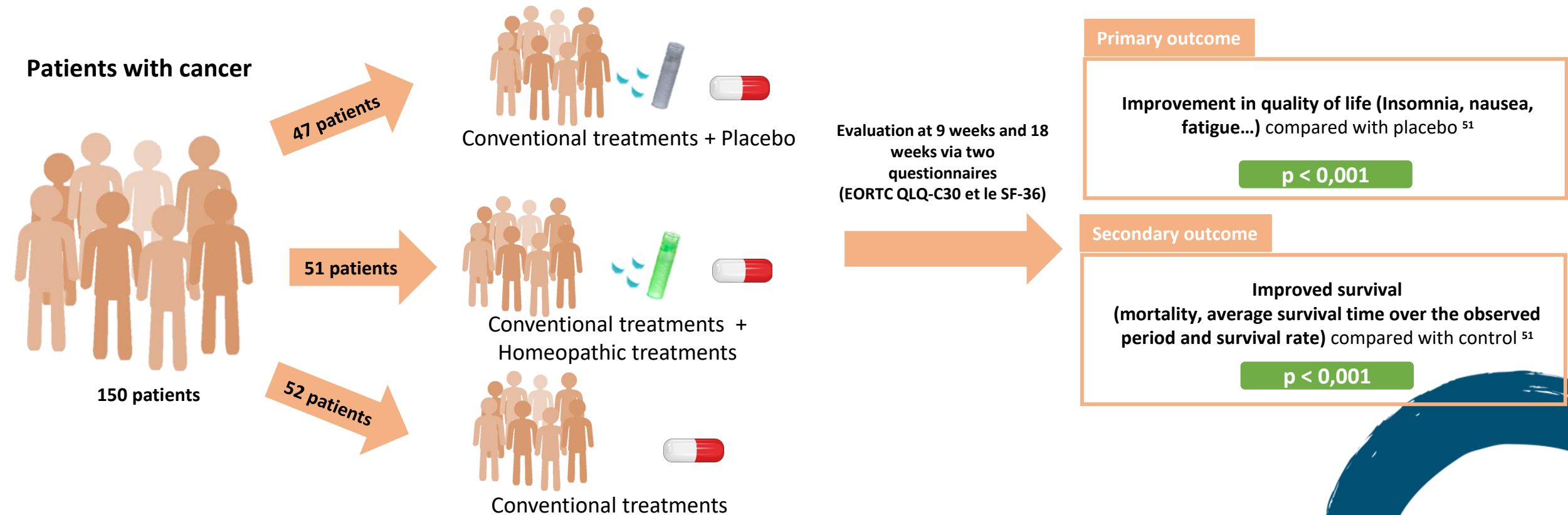


Polls

Homeopathic treatments used as adjunctive therapy

Frass *et al*, 2020

For example, a RCT showed that **an individualized homeopathic treatment used as adjunctive treatment for patients with cancer**, resulted in **improved well-being and quality of life** ⁵¹



Sources:

51. Frass M, Lechleitner P, Gründling C, *et al*. Homeopathic Treatment as an 'Add on' Therapy May Improve Quality of Life and Prolong Survival in Patients with Non-Small Cell Lung Cancer: A Prospective, Randomized, Placebo-Controlled, Double-Blind, Three-Arm, Multicenter Study. *Oncologist*. 2020 Oct 3.

META ANALYSES



Meta-analyses on homeopathy

Between 1991 and 2019, on **9 meta-analysis programs*** were conducted on clinical studies involving all types of homeopathic treatments for all medical disorders pooled; **8 showed the beneficial effect** of homeopathic treatments exceeding that of the placebo effect



8 positive meta-analysis



7

Meta-analyses showed a trend in favor of homeopathy

- Kleijnen, J *et al.* BMJ, 1991.
- Linde, K. *et al.* Lancet, 1997.
- Linde, K. *et al.* J. Clin. Epidemiol., 1999.
- Cucherat, M *et al.* J. Clin. Pharmacol., 2000.
- Mathie RT *et al.* Syst Rev. 2017.
- Mathie RT *et al.* Homeopathy. 2018.
- Mathie RT *et al.* Homeopathy. 2019.

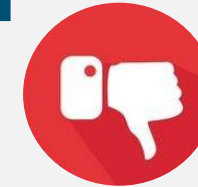
All of these meta-analyses showed a beneficial effect in favor of homeopathy. However, they emphasize the importance of confirming these results with better quality studies

1

Meta-analysis showed significant results

- Mathie RT *et al.* Syst Rev. 2014

This meta-analysis showed that an individualized homeopathic treatment is 1.5 to 2 times more likely to have a beneficial effect than placebo



1 negative meta-analysis

1

Meta-analysis failed to show a beneficial effect of homeopathy

- Shang A *et al.* Lancet, 2005

Although this meta-analysis failed to show an effect of homeopathy exceeding the placebo effect, this meta-analysis collated only 73% of homeopathy studies up to 2005 and the withdrawal of a single study would reverse the trend and be in favor of homeopathy

*Total number to date, of meta-analysis programs in general medicine (studying all pathologies and all homeopathic treatments pooled). It should be noted that there are other, targeted, meta-analyses (including specific pathologies and/or on specific treatments. (E.g.: [Jacobs et al. 2003](#)))

Dr Mathie's meta-analyses

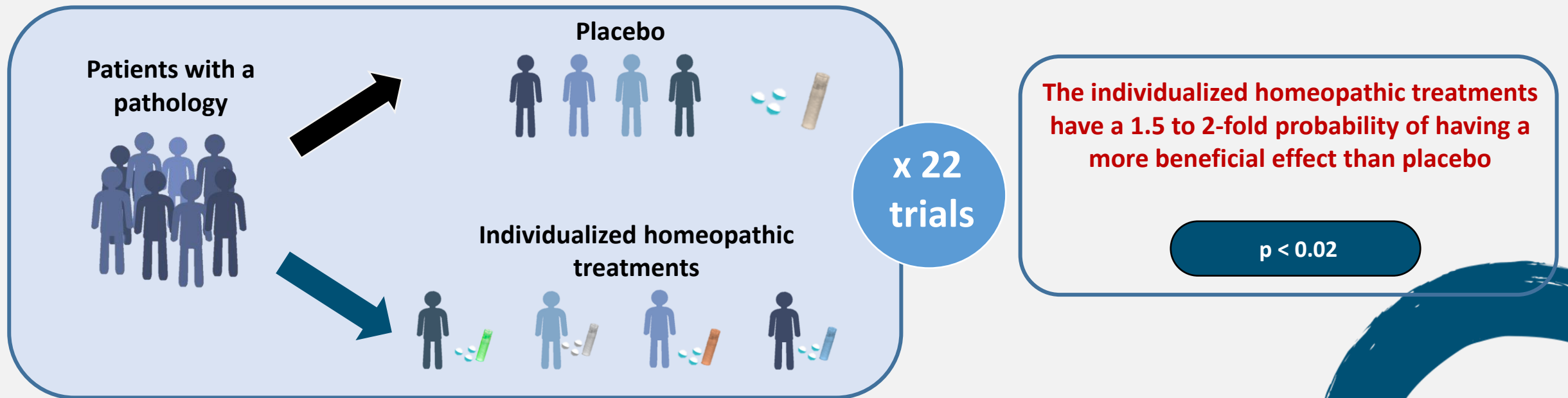
L'EFFET CLINIQUE DE
L'HOMÉOPATHIE



In 2014, a meta-analysis showed that an individualized homeopathic treatment is 1.5 to 2 times more likely to have a beneficial effect than placebo ⁴⁰

The 2014 review thus included a meta-analysis which was performed on 22 randomized controlled double-blind trials the objective of which was to evaluate the efficacy of an individualized homeopathic treatment compared with a placebo. It demonstrated that, of the 22 studies analyzed:

- 15 studies showed a positive clinical effect of homeopathy and in 3 of them the individualized homeopathic treatment showed a significant effect (OR*= 1.53 and 1.98 ; $p < 0.05$)
- Other quality studies are required to increase the statistical power

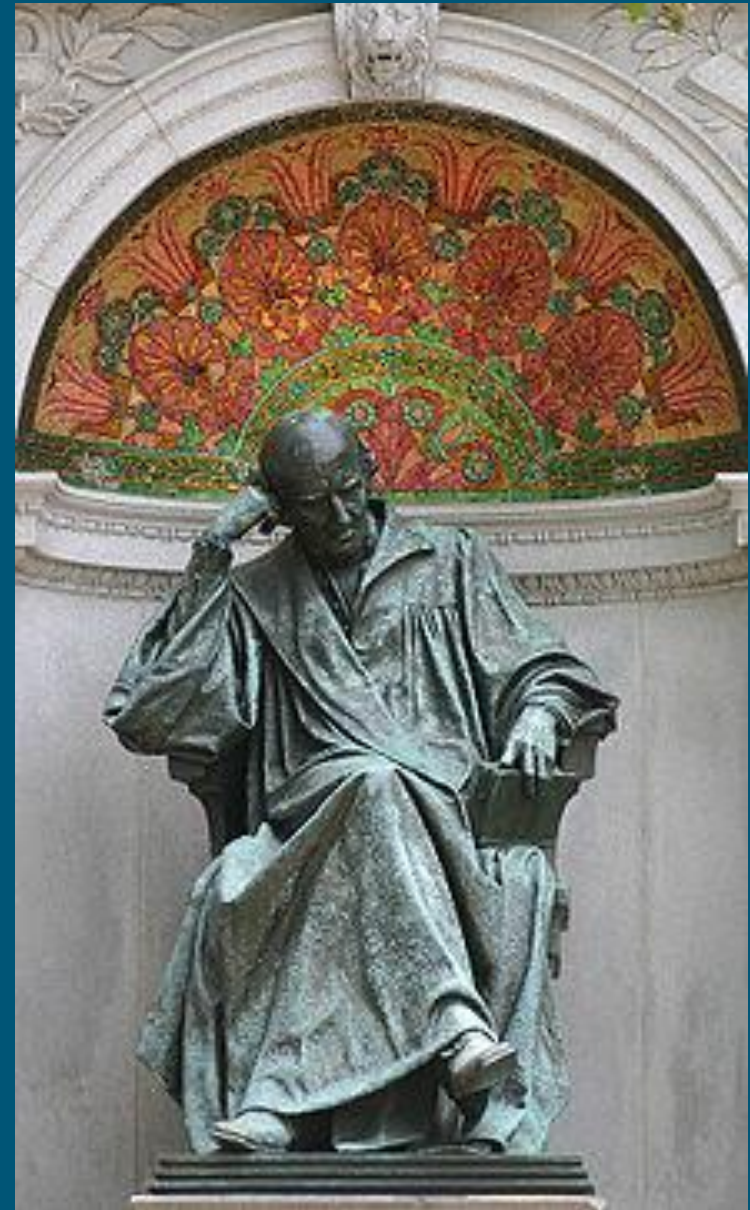


*OR = odds ratio: calculates the relative risk that an event will occur. OR>1 means that the event is more likely to occur

Sources:

40. [Mathie RT, Lloyd SM, Legg LA, et al. Randomised placebo-controlled trials of individualized homeopathic treatment: systematic review and meta-analysis. Syst Rev. 2014;3:142.](#)

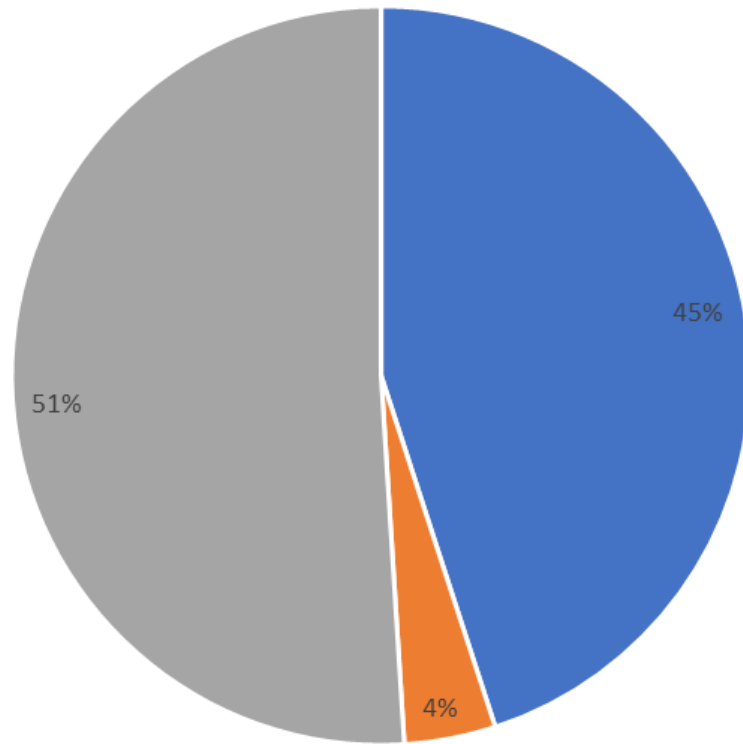
CONCLUSION



Polls

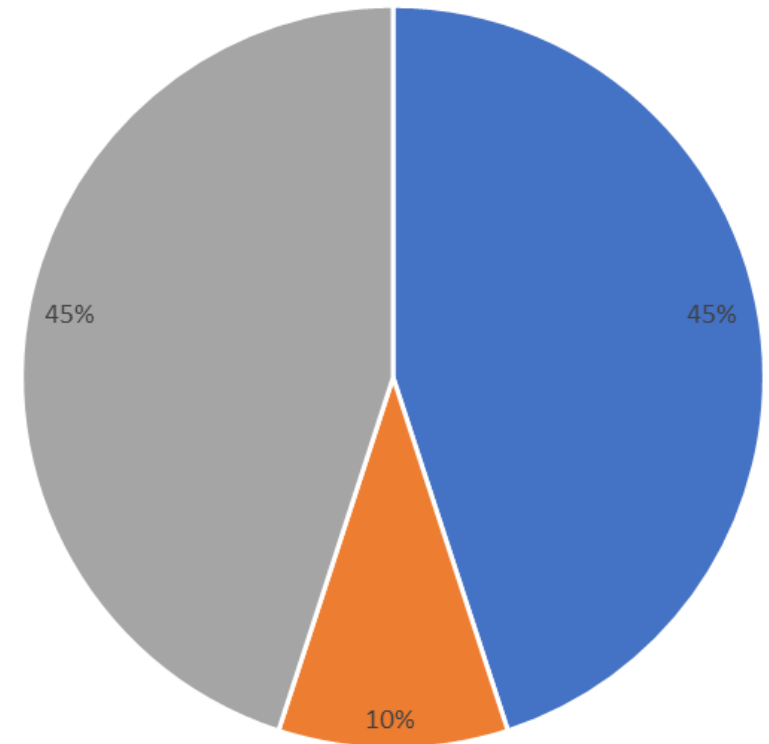
Distribution of Positive/Negative and Inconclusive Trials

Homeopathy (2019: 129 RTC/77 medical conditions)



■ Positive trials ■ Negative Trials ■ Inconclusive Trials

Conventional Medicine (2019: 1128 RTC)



■ Positive trials ■ Negative Trials ■ Inconclusive Trials

Research In Homeopathy

- More research is needed
- Better methodology is needed
- Fundamental research could lead to a break-through
- Clinical research should focus on few pathologies to create a mass effect



Research In Homeopathy

Webinar on Research: Rachel Roberts CEO of
the Homeopathic Research Institute hri.org

March 4th 2021 2:30 pm EST
www.AAHP.com/events



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- Please answer the post-webinar survey
- The webinar will be will be posted (audio & video)
 - www.boironusa.com/hcp/hcp-education/



THANK YOU