DNA resonance code

Ivan V. Savelyev, Nelli V. Zyryanova, Oksana Polesskaya, Celeste O'Mealy, Max Myakishev-Rempel

Affiliations:

Ivan V. Savelyev - D

Oksana O. Polesskaya - U, L, D.

Nelli V. Zyryanova - D

Celeste O'Mealy - L, D

Max Myakishev-Rempel - D, L, T, V

D - DNA resonance lab, San Diego, CA, USA

L- Localized Therapeutics, San Diego, CA, USA

T - Transposon LLC, San Diego, CA, USA

V - Vaccine Research Institute of San Diego, San Diego, CA, USA

U - University of California -San Diego, San Diego, CA, USA

Contact MMR: max@dnaresonance.org

Most basic experiments on biological fields involve two samples such as cell culture aliquotes in sealed quartz cuvettes separated by optical filters. When one of the aliquotes is perturbed, the second one may catch the signal that is transferred non-chemically and is blocked by light impermeable filters. Such effects are often referred to as "non-chemical cell-cell communication" and are reviewed in refs [1–4]. Original experimental reports include communication between cell culture aliquotes via polystyrene petri dish [5,6] and between plant roots through the air [7].

Among such models, simplest and most robust seems a model of Burlakov [8] that uses fish embryos. Compared to cell culture and adult organisms, embryos are more sensitive, produce stronger biological fields and their developmental abnormalities are easier to observe. In Burlakov's model, 50 fish embryos are placed in each of two quartz cuvettes stacked on top of each other and incubated for several days in a metal box. It was observed that older embryos inhibit the development of the younger ones. A Germanium mirror accelerates the development when a single cuvette is placed on it, and a quartz retroreflector prism represses the development and causes developmental abnormalities.[8] Burlakov's lab has published great many papers using this model [8–18] and is continuing the tradition of the scientific school of Alexander Gurwitsch.

Alexander Gurwitsch (1874-1954) developed experimental models for the measurement non-chemical communication between biological objects 96 years ago. He postulated the existence of the morphogenic field [19] responsible for creation of the shape of the body in 1922, proved the existence of such a field [20–25] and characterized its spectral properties [26] . His results were reproduced by Anna Gurwitch [27,28] Burlakov [8] and others [29] and his scientific school is continuing after an 8-year interruption in 1948-1956 [23]. Alexander Gurwitsch was nominated for Nobel Prize 11 times and negation of his discovery published 96 years ago is one of the main sins of modern biology.

A typical Gurwitsch's experiment used a growing onion root as a source of biologically active waves which he

called mitogenic radiation since it accelerated mitosis [26]. Another growing onion root or a petri dish with yeast culture was used as a receiving object. The sending and receiving objects were separated by a quartz prism allowing for spectral mapping of mitogenic irradiation. The further experiments of Burlakov with retroreflector prisms proved that such an irradiation is not only capable of accelerating mitosis but also of producing developmental abnormalities thus confirming the concept of morphogenic properties of the field.[30,31]

The concept of morphogenic field is a response to the need to explain biological development: how is the shape of the body, organs and tissues formed from a single fertilized egg cell. Current chemical explanations of development are correct but insufficient. Understanding the fundamental mechanisms of development has an immediate practical application: controlling the shape of the body would help curing obesity, growing new organs, bones, limbs, teeth, remodeling scarred wounds and rejuvenating aged joints.

The idea that the morphogenic field is holographic and created by the genomic DNA was first published by Richard Alan Miller, Burt Webb, and Darden Dickson in 1975.[32] Luc Montagnier [33] continuing the work of Jacques Benveniste [34] demonstrated that DNA sequences produce biologically active electromagnetic fields. Konstantin Meyl [35] proposed that biological electromagnetic waves produced by DNA have unusual field structure allowing them to transmit through tissues without loss.

Even though the background ideas for explaining the role of DNA in morphogenesis through morphogenic field has been laid by Gurwitsch, Miller, Burlakov, Montagnier, Meyl and others, the specifics are still unclear.

Not enough genes

A

hypothesis about a morphogenic field was published by Gurvich in 1922.[19] The hypothesis of DNA resonances was proposed by Miller and co-authors in 1973. [36] We determine the resonance of DNA as a specific wave interaction of DNA sequences. In this case, the sequences need not be identical, but should have similar oscillatory properties. We define a resonant DNA code as an algorithm by which a genomic sequence forms a morphogenic field. We hypothesized that resonantx oscillationsDNA are summarized in stacks electron cloud base.[37,38] The idea that DNA can have magnetic properties goes back to the experimental works of Lev Blumenfeld in the 1960s.[39] The dispute about these properties continues to this day. All experiments on this topic are carried out in strong magnetic fields with purified DNA. We came to this question from the other side. We noticed that two DNA strands in biology behave like antiparallel magnets, and that the aromatic rings of electrons in the bases are likely to rotate, and in the double aromatic rings of purines, electrons are likely to rotate through the eight.[37] In this case, pyrimidines support unidirectional, and purines - bi-directional magnetic field.[37] Thus, we showed how the structures of the generalized DNA fields and their oscillations can depend on its sequence. We also suggested that tetranucleosomal chromatin structures form vibrational circuits, where nucleosomes work as induction coils.[38] We have shown how the frequency and shape of oscillations in tetranucleosomes will also depend on the DNA sequence. Moreover, since similar nucleosomal structures will resonate, we assume that the main resonating elements in the genome are genomic repetitions, primarily Alu and LINE1.[40] We believe that classical methods of genomics will be sufficient for decoding the resonance code of DNA: genetic engineering with subsequent measurement of spectral properties and full-genome mapping of the influence of waves on the openness and transcription of DNA. In particular, we showed the effect of red light on the expression of candidate genes in murine epidermis.[41] In addition to the DNA contained in the nucleus, microtubules in the cytoplasm are also likely to transmit signal.[42–45] We assume that the microtubules and DNA communicate resonantly through the nuclear membrane, and that the microtubules of neighboring cells communicate resonantly through the contact points of the cell membranes, thereby integrating all the body nuclei by the waveguides. From this it follows that resonant vibrations of DNA propagate not by chance, but are guided by waveguides of microtubules. We assume that the nervous system and connective tissue are

primarily responsible for uniting the organism into a single holographic system.

1. Cifra M, Fields JZ, Farhadi A. Electromagnetic cellular interactions. Prog Biophys Mol Biol. Elsevier; 2011 May;105(3):223–246. PMID: 20674588

2. Scholkmann F, Fels D, Cifra M. Non-chemical and non-contact cell-to-cell communication: a short review. Am J Transl Res. ncbi.nlm.nih.gov; 2013 Sep 25;5(6):586–593. PMCID: PMC3786266

3. Trushin MV. Distant non-chemical communication in various biological systems. Riv Biol. researchgate.net; 2004 Aug;97(3):409–442. PMID: 15754593

4. Xu J, Yang F, Han D, Xu S. Wireless Communication in Biosystems [Internet]. arXiv [physics.bio-ph]. 2017. Available from: http://arxiv.org/abs/1708.02467

5. Rossi C, Foletti A, Magnani A, Lamponi S. New perspectives in cell communication: Bioelectromagnetic interactions. Semin Cancer Biol. Elsevier; 2011 Jun;21(3):207–214. PMID: 21569849

6. Farhadi A, Forsyth C, Banan A, Shaikh M, Engen P, Fields JZ, Keshavarzian A. Evidence for non-chemical, non-electrical intercellular signaling in intestinal epithelial cells. Bioelectrochemistry. Elsevier; 2007 Nov;71(2):142–148. PMID: 17428745

7. Ciszak M, Comparini D, Mazzolai B, Baluska F, Arecchi FT, Vicsek T, Mancuso S. Swarming behavior in plant roots. PLoS One. journals.plos.org; 2012 Jan 17;7(1):e29759. PMCID: PMC3260168

8. Burlakov AB, Burlakova OV, Golichenkov VA. Distant wave-mediated interactions in early embryonic development of the loachMisgurnus fossilis L. Russ J Dev Biol. 2000 Sep 1;31(5):287–292.

9. Beloussov LV, Burlakov AB, Louchinskaia NN. Biophotonic patterns of optical interactions between fish eggs and embryos. Indian J Exp Biol. nopr.niscair.res.in; 2003 May;41(5):424–430. PMID: 15244263

10. Burlakov AB. Distant physical interactions between the developing fish embryos. Biophotonics and Coherent Systems. Moscow: Univ. Press; 2000. p. 298–304.

11. Бурлаков АБ, Лебедева НЕ. Адекватность биологических моделей при исследовании влияния сверхмалых доз воздействий химической и физической природы. труды VII Международного конгресса «Слабые и …. 2015;

12. Бурлаков АБ, Бурлакова ОВ, Голиченков ВА. Дистантные взаимодействия разновозрастных

эмбрионов вьюна. ДАН. 1999;

13. Бурлаков АБ, Бурлакова ОВ, Голиченков ВА. Дистантные взаимовлияния биологических систем. Научные труды VI Междунар конгресса \guillemotleftСлабые и сверхслабые поля и излучения в биологии имедицине\guillemotright, ISBN. biophys.ru; 2012;5–86456.

14. Бурлаков АБ, Чернова ГВ, Бабкина ВВ. Изменчивость морфологических признаков как проявление эффектов излучения крайне высокой частоты и их оценка в биоинформационном контексте. Биомедицинская [Internet]. elibrary.ru; 2017; Available from: https://elibrary.ru/item.asp?id=28113037

15. Бурлаков АБ, Бурлакова ОВ, Королев ЮН. Поляризационые эффекты при дистантном взаимодействии биологических объектов. Вестник МГУ Серия 16. 2002;

16. Бурлаков АБ, Бурлакова ОВ, Голиченков ВА. Роль сверхслабых биоизлучений в развитии низших позвоночных. В коллективной монографии“ Современные проблемы физики, биофизики и информационных технологий”-Краснодар: Краснодарский ЦНТИ. 2010;

17. Бурлаков АБ, Бурлакова ОВ, Голиченков ВА. Возможные изменения индивидуального биологического времени слабыми электромагнитными излучениями. тр V Международ конгр«Слабые и …. 2009;

18. Бурлаков АБ, Медведева АА, Бурлакова ОВ. Особенности биологического действия спектральных составляющих сверхслабых излучений вьюна в раннем онтогенезе. и сверхслабые поля и … [Internet]. biophys.ru; 2006; Available from: http://www.biophys.ru/archive/congress2006/pro-p34.pdf

19. Gurwitsch A. Über den Begriff des Embryonalen feldes. Wilhelm Roux Arch Entwickl Mech Org. 1922 Dec 1;51(1):383–415.

20. Gurwitsch A. Die Natur des spezifischen Erregers der Zellteilung. Archiv für mikroskopische Anatomie und Entwicklungsmechanik. 1923 Mar 1;100(1):11–40.

21. Gurwitsch L. Untersuchungen über mitogenetische Strahlen. Archiv für mikroskopische Anatomie und Entwicklungsmechanik. 1924 Oct 1;103(3):483–489.

22. Alexander, Gurwitsch L. Weitere Untersuchungen über mitogenetische Strahlungen. Archiv für mikroskopische Anatomie und Entwicklungsmechanik. 1925 Feb 1;104(1):109–115.

23. Beloussov LV, Opitz JM, Gilbert SF. Life of Alexander G. Gurwitsch and his relevant contribution to the theory of morphogenetic fields. International Journal of [Internet]. ijdb.ehu.es; 2004; Available from: http://www.ijdb.ehu.es/web/descarga/paper/9449452

24. Lipkind M. Alexander Gurwitsch and the Concept of the Biological Field, Part 1. 21st Century Sci Technol. 21ST CENTURY SCIENCE ASSOCIATES; 1998;11:36–51.

25. Lipkind M. Alexander Gurwitsch and the Concept of the Biological Field, Part 2. 21st Century Sci Technol. 21ST CENTURY SCIENCE ASSOCIATES; 1998;11:34–53.

26. Die mitogenetische Strahlung. Protoplasma. 1932 Dec 1;16(1):164–167.

27. Гурвич АА. Проблема митогенетического излучения как аспект молекулярной биологии. books.google.com; 1968; Available from: https://books.google.com/books?hl=en&lr=&id=A1v-AgAAQBAJ&oi=fnd&pg=PA3&dq=%D0%93%D1%83%D1%80%D0%B2%D0%B8%D1%87+%D0%90+%D0%90+%D0%9F%D1%80%D0%BE%D0%B1%D0%BB%D0%B5%D0%BC%D0%B0+%D0%BC%D0%B8%D1%82%D0%BE%D0%B3%D0%B5%D0%BD%D0%B5%D1%82%D0%B8%D1%87%D0%B5%D1%81%D0%BA%D0%BE%D0%B3%D0%BE+%D0%B8%D0%B7%D0%BB%D1%83%D1%87%D0%B5%D0%BD%D0%B8%D1%8F+%D0%BA%D0%B0%D0%BA

+%D0%B0%D1%81%D0%BF%D0%B5%D0%BA%D1%82+%D0%BC%D0%BE%D0%BB%D0%B5%D0%BA%D1%83%D0%BB%D1%8F%D1%80%D0%BD%D0%BE%D0%B9+%D0%B1%D0%B8%D0%BE%D0%BB%D0%BE%D0%B3%D0%B8%D0%B8+%D0%A0%D0%B8%D0%BF%D0%BE%D0%BB+%D0%9A%D0%BB%D0%B0%D1%81%D1%81%D0%B8%D0%BA+1968&ots=jkh-KSvkKn&sig=MpQdSbD4lw-ZoRH12nCTdAeq_sY

28. Гурвич АГ, Гурвич АА. Принципы аналитической биологии и теории клеточных полей. Наука; 1991.

29. Quickenden TI, Que Hee SS. Weak luminescence from the yeast Saccharomyces cerevisiae and the existence of mitogenetic radiation. Biochem Biophys Res Commun. 1974 Sep 23;60(2):764–770. PMID: 4607411

30. Бурков ВД, Бурлаков АБ, Перминов СВ. Управление дистантным взаимодействием биологических объектов при помощи кварцевых световозвращателей. Биомедицинская [Internet]. elibrary.ru; 2008; Available from: https://elibrary.ru/item.asp?id=11678936

31. Бурлаков АБ, Капранов ЮС, Куфаль ГЭ. О ВОЗМОЖНОСТИ ВЛИЯНИЯ НА КОНФИГУРАЦИЮ ЭЛЕКТРОМАГНИТНЫХ ПОЛЕЙ БИОЛОГИЧЕСКИХ ОБЪЕКТОВ. biophys.ru [Internet]. Available from: http://www.biophys.ru/archive/congress2012/proc-p112-d.pdf

32. Miller RA, Webb B, Dickson D. A holographic concept of reality. Psychoenergetic Systems. Gordon and Breach Science Pub Ltd; 1975;1:55–62.

33. Montagnier L, Aissa J, Del Giudice E, Lavallee C, Tedeschi A, Vitiello G. DNA waves and water. J Phys Conf Ser. IOP Publishing; 2011 Jul 8;306(1):012007.

34. Davenas E, Beauvais F, Amara J, Oberbaum M, Robinzon B, Miadonna A, Tedeschi A, Pomeranz B, Fortner P, Belon P. Human basophil degranulation triggered by very dilute antiserum against IgE. Nature. 1988 Jun 30;333(6176):816–818. PMID: 2455231

35. Meyl K. DNA and Cell Resonance. Kindle.

36. Miller RA, Webb B, Dickson D. A holographic concept of reality. Psychoenergetic Systems. Gordon and Breach Science Pub Ltd; 1975;1:55–62.

37. Guschin VV, Polesskaya O, Zyryanova N, Tovmash A, Mara A, Erdyneeva E, Myakishev-Rempel M, Guschin-B VV, Zyryanova-B N, Tovmash-B A, Others. On the function of DNA magnetism. Available from: https://emmind.net/openpapers_repos/Endogenous_Fields-Mind/General/EM_DNA/2018_On_the_function_of_DNA_magnetism.pdf

38. Polesskaya O, Guschin V, Kondratev N, Garanina I, Nazarenko O, Zyryanova N, Tovmash A, Mara A, Shapiro T, Erdyneeva E, Zhao Y, Kananykhina E, Myakishev-Rempel M. On possible role of DNA electrodynamics in chromatin regulation. Prog Biophys Mol Biol. 2018 May;134:50–54. PMID: 29294317

39. Блюменфельд ЛА. О ферромагнетизме органических структур. Доклады Академии наук [Internet]. mathnet.ru; 1963; Available from: http://www.mathnet.ru/rus/dan27482

40. YouTube LLC. YouTube. Retrieved. 2011;27:2011.

41. Myakishev-Rempel M, Stadler I, Polesskaya O, Motiwala AS, Nardia FB, Mintz B, Baranova A, Zavislan J, Lanzafame RJ. Red Light Modulates Ultraviolet-Induced Gene Expression in the Epidermis of Hairless Mice. Photomed Laser Surg. 2015 Oct;33(10):498–503. PMCID: PMC4605358

42. Craddock TJA, Friesen D, Mane J, Hameroff S, Tuszynski JA. The feasibility of coherent energy transfer in microtubules. J R Soc Interface. 2014 Nov 6;11(100):20140677. PMCID: PMC4191094

43. Hameroff S, Nip A, Porter M, Tuszynski J. Conduction pathways in microtubules, biological quantum computation, and consciousness. Biosystems. 2002 Jan;64(1-3):149–168. PMID: 11755497

44. Hameroff SR. Ch'i: A Neural Hologram? Microtubules, Biohholography, and Acupuncture. Am J Chin Med. World Scientific Publishing Co.; 1974 Jan 1;02(02):163–170.

45. Sahu S, Ghosh S, Hirata K, Fujita D, Bandyopadhyay A. Multi-level memory-switching properties of a single brain microtubule. Appl Phys Lett. American Institute of Physics; 2013 Mar 25;102(12):123701.