

AROMATERAPIA VIBRACIONAL

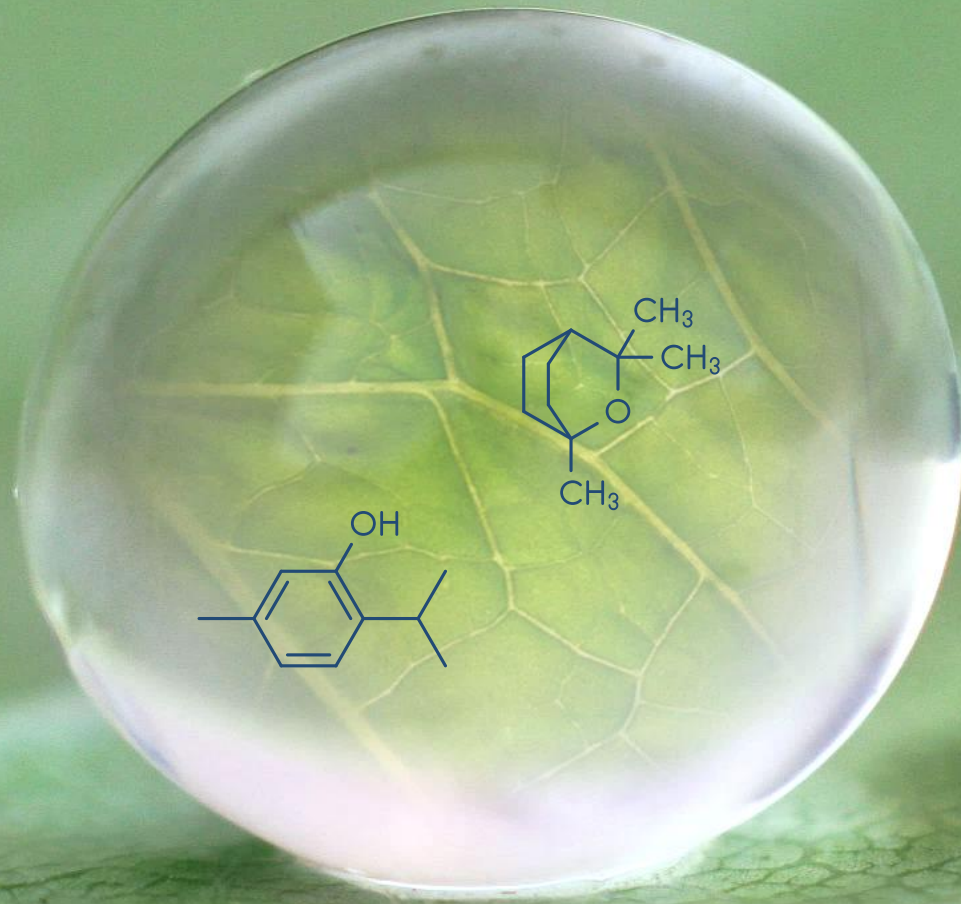
Fábián László
Aromatólogo



LASZLO

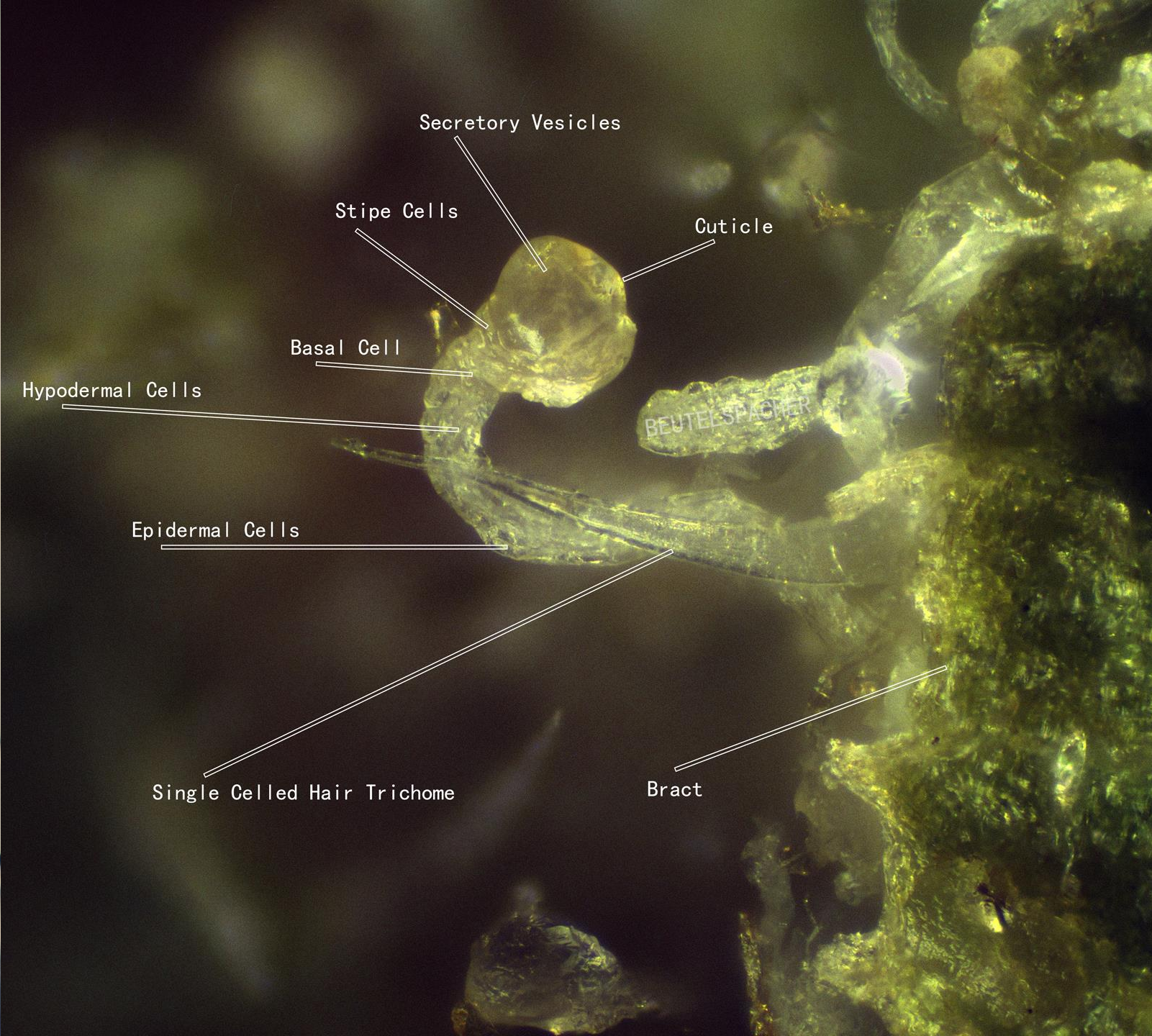
O que são óleos essenciais?

São substâncias voláteis produzidas por plantas aromáticas com a intenção de comunicar algum tipo de informação a outras espécies ou defender-se de algum elemento agressor do meio ambiente, como pragas ou agentes infecciosos, mudanças drásticas de temperatura, etc.



Vesículas secretoras de óleos essenciais





Secretory Vesicles

Stipe Cells

Cuticle

Basal Cell

Hypodermal Cells

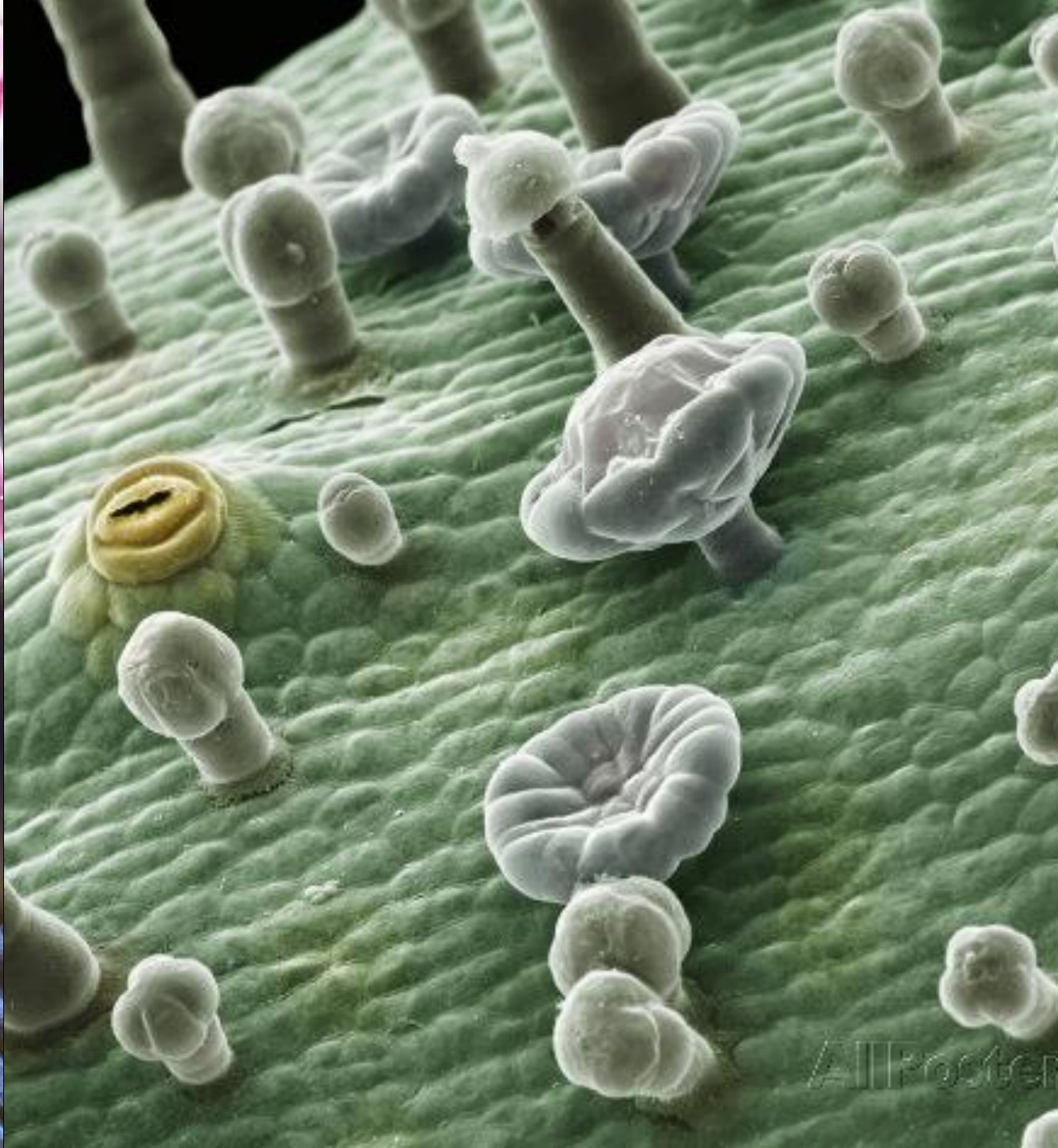
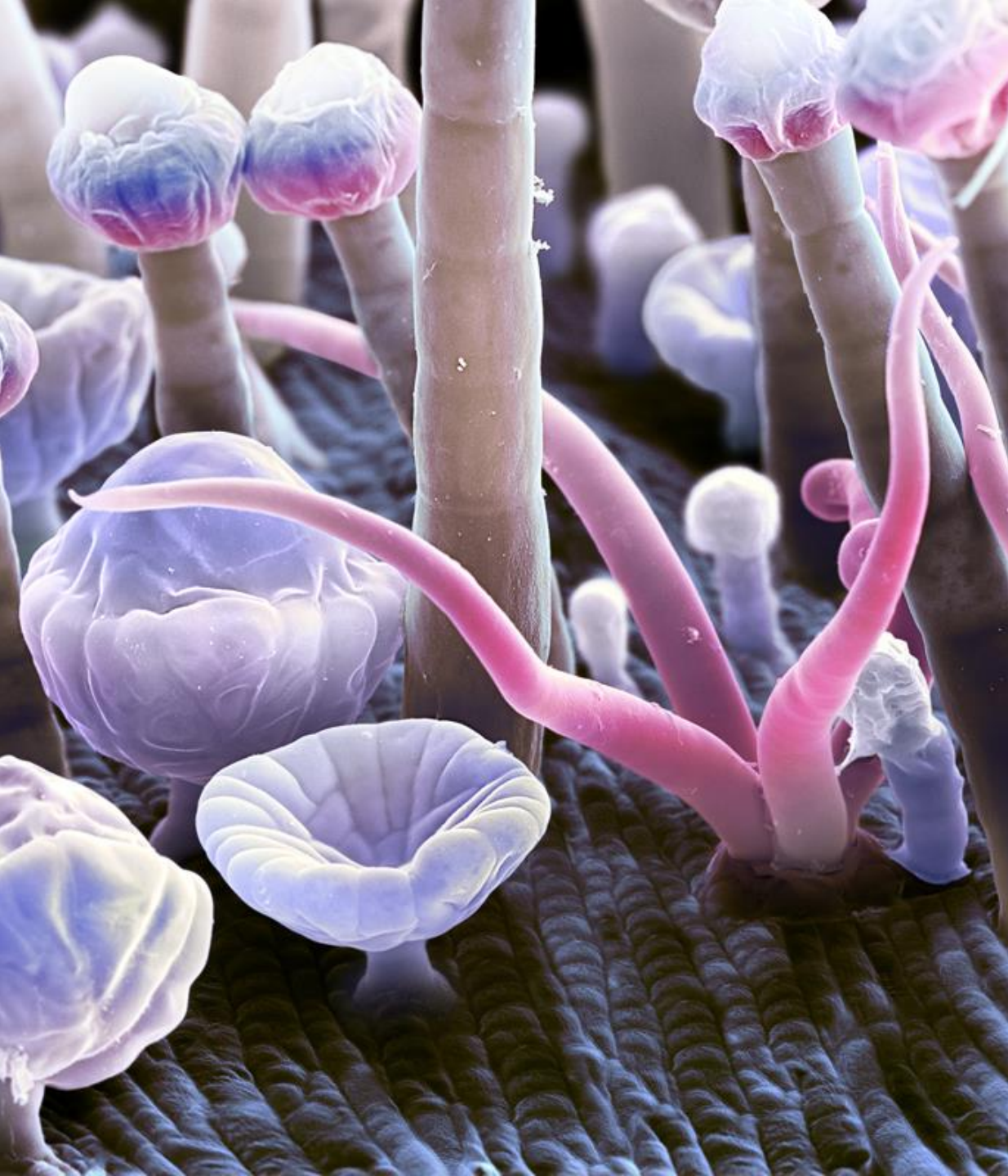
Epidermal Cells

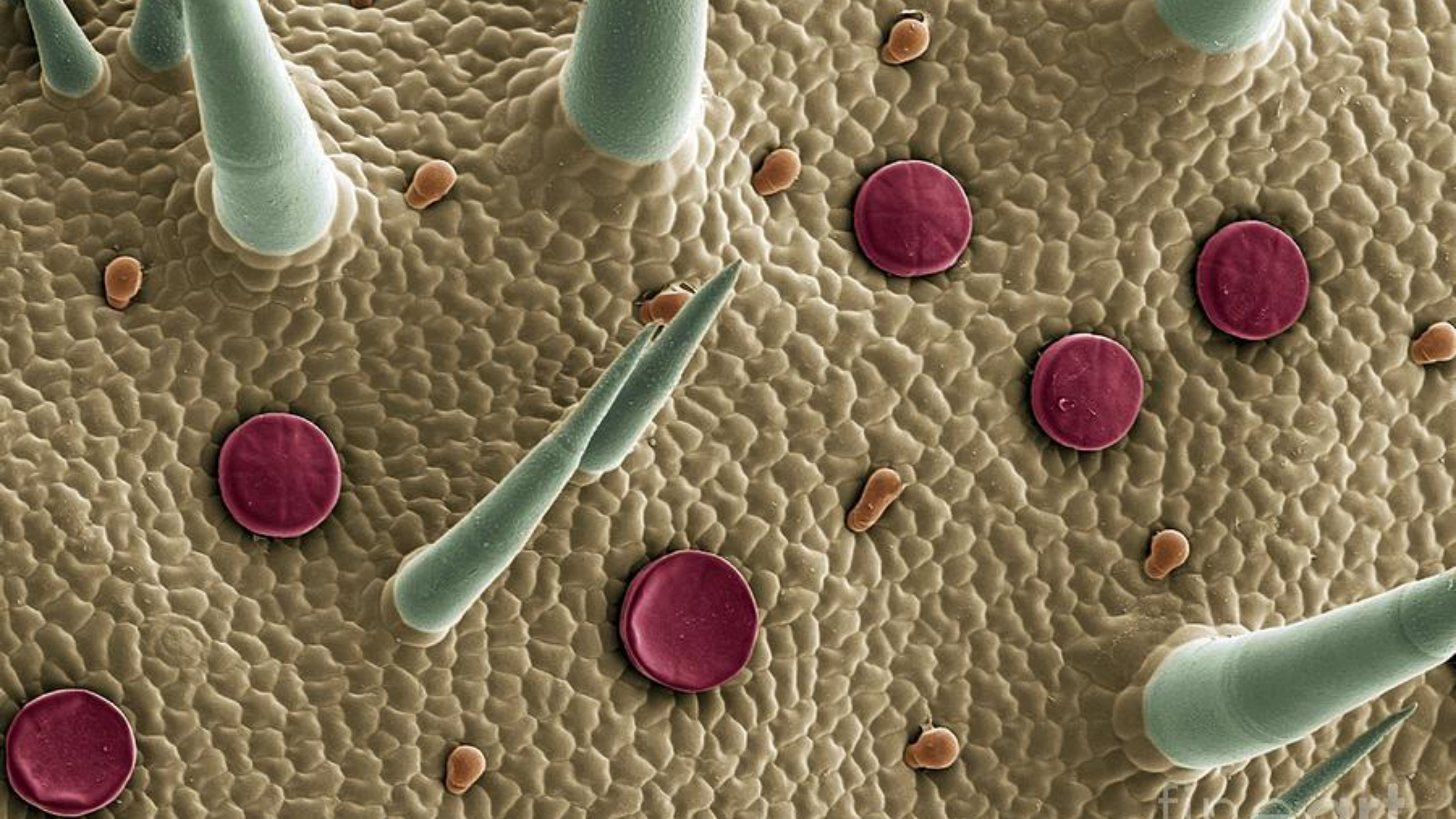
Single Celled Hair Trichome

Bract

BEUTELSPÄCHER









Destilador indiano intacto mais antigo do mundo

Datada em torno de 450 aC (mais de 2.500 anos atrás), este destilador em terracota foi descoberto no subcontinente indiano, na antiga cidade de Taxila, a antiga capital da região oriental de Punjab, há 30 quilômetros a noroeste da atualmente chamada Islamabad. **Museu de Taxila no Paquistão.**



Produção óleo essencial de rosas











Produção óleo essencial de lavanda









René- Maurice Gattefossé (químico)

(1881 – 1950)

Considerado o “pai” da Aromaterapia, foi quem criou esse termo e lançou em 1937 o primeiro livro do mundo intitulado “aromatherapie”.

Trabalhou conjuntamente com importantes médicos da época, abertos ao uso de fitoterápicos e óleos essenciais. Esse trabalho chamou atenção para o imenso potencial terapêutico que os óleos essenciais possuem, fomentando novas pesquisas voltadas a tratamentos de saúde, ao longo de todas as décadas posteriores.

Dr. Jean Valnet (médico)

(1920 – 1995)

Jean Valnet foi um cirurgião médico lutador de vanguarda pela utilização da fito-aromaterapia na saúde pública.

Junto com Gattefossé, o Dr. Valnet é considerado como um dos fundadores da aromaterapia moderna.



3 VIAS DE AÇÃO DOS ÓLEOS ESSENCIAIS

FISIOLÓGICA - FÍSICA

Ação sobre o metabolismo e fisiologia do corpo. Propriedades por exemplo anti-inflamatórias, anti-infecciosas, expectorantes, hormonais e ligantes.

PSICOLÓGICA - EMOCIONAL

Ação sobre o campo mental-emocional do Ser.

ENERGÉTICA-VIBRACIONAL

Ação sobre a frequência energética do corpo.



AÇÃO PSICOLÓGICA DOS AROMAS

Cientistas especulam que o sistema olfativo evoluiu de forma separada, e anterior aos outros sistemas sensoriais. A tarefa de discriminar os odores, e organizá-los no imenso arquivo de cheiros em nosso cérebro, cabe a várias estruturas localizadas no sistema límbico (amígdalas, hipotálamos, hipocampos, córtex entorrinal, tálamos). A amígdala e o hipotálamo são responsáveis pelos aspectos emocionais e o córtex frontal pela discriminação e percepção consciente dos odores. O hipocampo e o córtex frontal, por sua vez, também respondem pela fixação de outros significados como o valor social e o contexto espaço-temporal em que a ação ocorre. O fato de todas essas regiões do cérebro estarem conectadas, faz com que o processamento do odor envolva tanto aspectos cognitivos quanto emocionais.



Psiconeuroimunologia e Aromaterapia

A pesquisa de psiconeuroimunologia demonstra que as emoções influenciam o funcionamento imunológico e que o estresse tem forte impacto negativo na imunidade do organismo.

A aromaterapia é uma poderosa modalidade de tratamento a ser explorada para beneficiar as funções imunológicas da mente-corpo.

Os óleos essenciais podem desempenhar um papel significativo de apoio à função imunológica e ao bem-estar, auxiliando na criação de estados de humor positivos e através da indução de uma resposta de relaxamento.



ÓLEOS ESSENCIAIS NO AUMENTO DA IMUNIDADE

Óleo de palmarosa aumenta produção de anticorpos e que cravo-da-índia e estragão podem aumentar a contagem de glóbulos brancos em imunodeprimidos.

O óleo essencial de cravo-da-Índia teve a capacidade de aumentar a contagem total de glóbulos brancos nos camundongos, reduzida sensivelmente pela ciclofosfamida. De todos os óleos estudados até o momento, aqueles ricos em estragol, como o estragão, foram os mais potentes em aumentar a contagem de glóbulos brancos.

Foi descoberto que o geraniol, presente em 80% do óleo essencial de palmarosa (*Cymbopogon martinii*) foi mais potente que o eugenol do cravo e o gingerol do gengibre obtido via CO₂ para estimular a produção de anticorpos contra-infecções.



[1]. Carrasco FR et al. Immunomodulatory activity of *Zingiber officinale* Roscoe, *Salvia officinalis* L. and *Syzygium aromaticum* L. essential oils: evidence for humor- and cell-mediated responses. *J Pharm Pharmacol.* 2009 Jul;61(7):961-7.

[2]. Wiirzler, Luiz A. M. et al. Evaluation of immunomodulatory activity of transanethole and estragole, and protective effect against cyclophosphamide-induced suppression of immunity in Swiss albino mice. *International Journal of Applied Research in Natural Products* Vol. 8 (1), pp. 26-33. 2015

[3]. Silva-Comar FM. et al. Effect of estragole on leukocyte behavior and phagocytic activity of macrophages. *Evid Based Complement Alternat Med.* 2014;2014:784689.

[4]. Seema Farhath, et al Immunomodulatory activity of geraniol, geraniol acetate, gingerol, and eugenol essential oils: evidence for humoral and cell-mediated responses. *Avicenna Journal of Phytomedicine*, Vol. 3, No. 3, Summer 2013, 224-230

Ação Relaxante e Ansiolítica

EXEMPLO: LAVANDA É TÃO EFICAZ QUANTO O MEDICAMENTO LORAZEPAM

Em 2010, um laboratório da Alemanha registrou e lançou no mercado o medicamento **Silexan® (CalmAid)**, cuja composição de cada cápsula varia de 80 mg ou 160 mg de **OE de lavanda (*L. angustifolia*)**, (Silexan®, register 2009). Os resultados das investigações evidenciaram a ação ansiolítica deste medicamento, ao ser ingerida 1 (uma) cápsula diariamente por período de 14 dias consecutivos (Kasper, 2013; 2015), demonstrando que **OE de lavanda é tão eficaz quanto o benzodiazepínico lorazepam**, em adultos com desordem de ansiedade generalizada (Woelk e Schläpke, 2010; Kasper, 2013; 2015). Deste modo eles indicam seu uso clínico por via oral para tratar ansiedade.

Todas as terapias e profissões que necessitem de reduzir a ansiedade do paciente, se beneficiam do uso dos óleos essenciais em consultório, na prática e no pós atendimento com o uso residencial dos aromas.



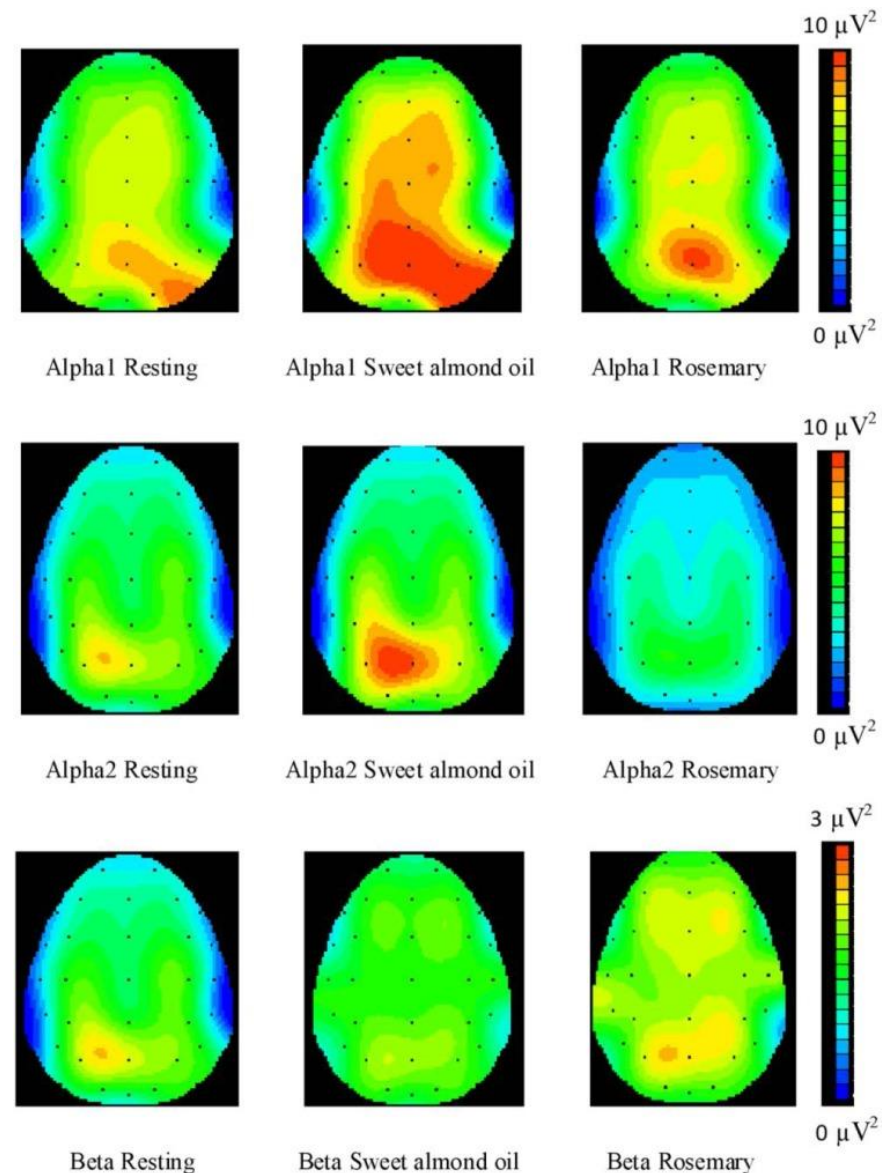
KASPER, et al. Efficacy of orally administered Silexan in patients with an-xiety-related restlessness and disturbed sleep—a randomized, placebo-controlled trial. *European Neuropsychopharmacology*, august, 2015.
SILEXAN®, register 2009: International Standard Randomised Controlled Trial Number ISRCTN74386009. Disponível em: <<http://www.controlled-trials.com/ISRCTN74386009>>. Acessado em 11/10/2015.
WOELK, H.; SCHLÄPKE, S. A multi-center, double-blind, randomised study of the lavender oil preparation silexan in comparison to lorazepam for generalized anxiety disorder. *Phytomedicine*, v. 17, p. 94–99, 2010.

ÓLEOS ESSENCIAIS PARA CONCENTRAÇÃO (ESTUDO)

O alecrim (*Rosmarinus officinalis*) é um dos óleos essenciais mais famosos na aromaterapia para ajudar estudantes. Num estudo com 20 voluntários, observou-se um aumento significativo na pressão arterial, frequência cardíaca e frequência respiratória após a inalação do óleo de alecrim. Os indivíduos relataram se sentir mais ativos e com uma sensação de frescor. Análises de eletroencefalograma mostraram uma redução nas ondas alfa 1 (8-10.99 Hz) e alpha 2 (11-12.99 Hz). Por outro lado, houve um aumento das ondas beta (13-30 Hz) na região anterior do cérebro.

Esses resultados confirmam os efeitos estimulantes de óleo de alecrim e fornecem elementos de prova de que a atividade das ondas cerebrais, a atividade do sistema nervoso autônomo, bem como estados de humor são todos afetados pela inalação deste óleo essencial, que favorece a concentração e reduz o cansaço.

Sayorwan W, et al. Effects of inhaled rosemary oil on subjective feelings and activities of the nervous system. *Sci Pharm*. 2013 Jun;81(2):531-42.



Mapa topográfico do cérebro da distribuição do poder de atividade alfa 1, alfa 2 e beta para a condição de repouso, inalação de óleo de amêndoas doces e inalação do óleo essencial de alecrim.

ÓLEOS ESSENCIAIS PARA A ESPIRITUALIDADE

[FASEB J.](#) 2008 Aug;22(8):3024-34. doi: 10.1096/fj.07-101865.

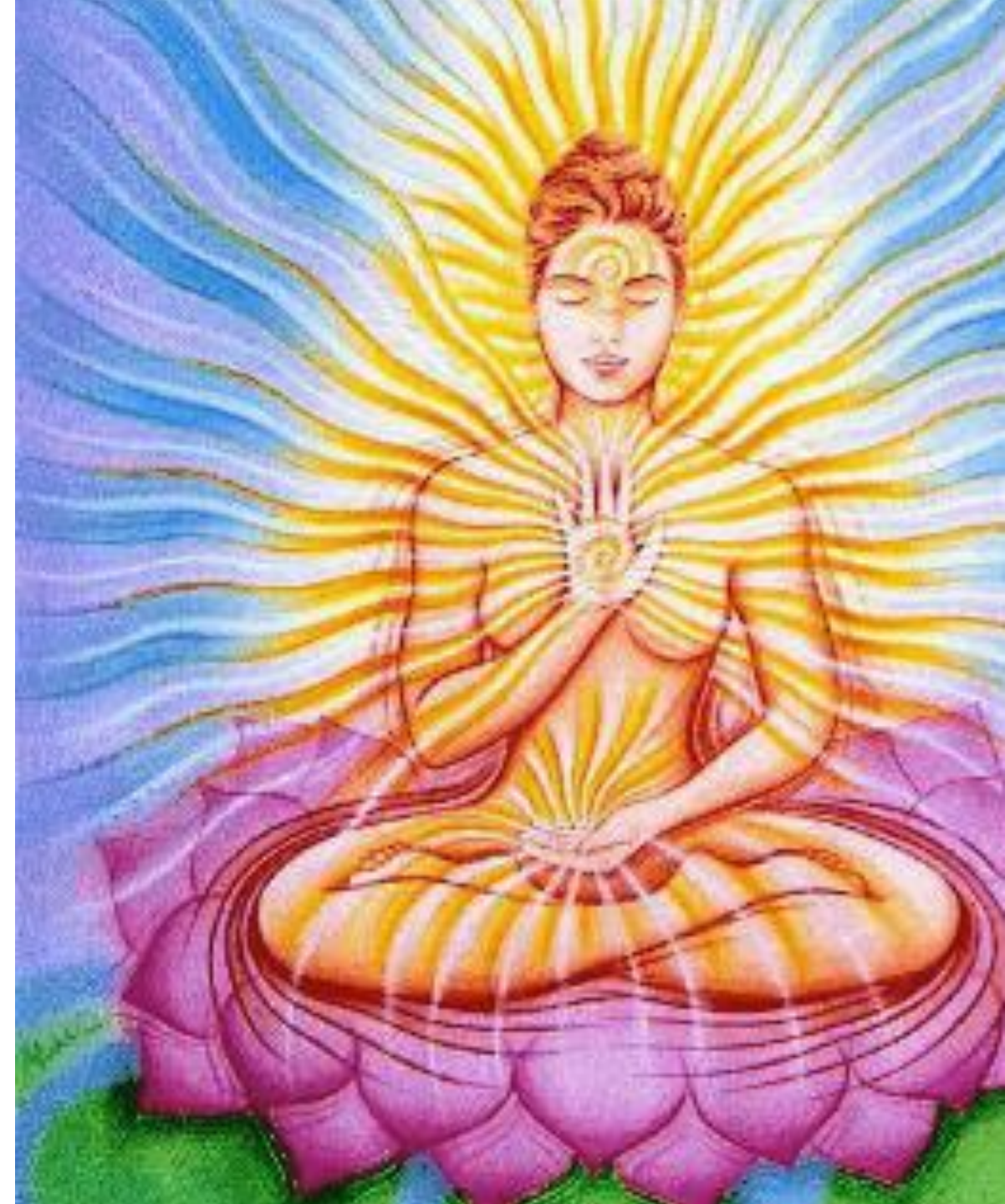
Epub 2008 May 20.

Incensole acetate, an incense component, elicits psychoactivity by activating TRPV3 channels in the brain.

[Moussaieff A](#), [Rimmerman N](#), et al.

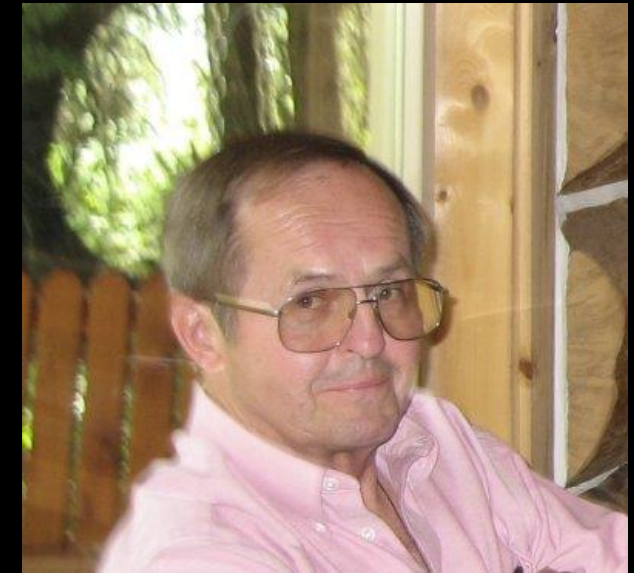
Abstract

Burning of Boswellia resin as incense has been part of religious and cultural ceremonies for millennia and is believed to contribute to the spiritual exaltation associated with such events. Transient receptor potential vanilloid (TRPV) 3 is an ion channel implicated in the perception of warmth in the skin. TRPV3 mRNA has also been found in neurons throughout the brain; however, the role of TRPV3 channels there remains unknown. **Here we show that incensoleacetate (IA), a Boswellia resin constituent, is a potent TRPV3 agonist that causes anxiolytic-like and antidepressive-like behavioral effects** in wild-type (WT) mice with concomitant changes in c-Fos activation in the brain. Our results imply that TRPV3 channels in the brain may play a role in emotional regulation. Furthermore, the biochemical and pharmacological effects of IA may provide a biological basis for deeply rooted cultural and religious traditions.



Aspectos vibracionais dos óleos essenciais

Em 1992, Bruce Tainio da Tainio Technology, uma divisão independente da Eastern State University em Cheney, Washington, construiu o primeiro monitor de frequências do mundo. Tainio pode determinar que a frequência média de um corpo humano saudável durante o dia vai de 62 to 71 MHz. Quando a frequência cai, o sistema imunológico fica comprometido. Se a frequência cai para 58 MHz, sintomas de gripe e resfriados aparecem; a 55 MHz doenças como a cãndida podem tomar conta; a 52 MHz o vírus Epstein Bar e a 42 MHz o câncer. Foi observado que dores de cabeça são causadas por um distúrbio nos campos eletromagnéticos nos hemisférios direito e esquerdo do cérebro. Se a frequência varia mais do que 3Mhz dores de cabeça aparecem. Se a frequência varia em mais de 10 MHz dores de cabeça do tipo enxaqueca podem se desenvolver. A máquina de Tainio foi certificada como 100% acurada e tem sido utilizada atualmente nos EUA para pesquisas no campo da agricultura.



Bruce Tainio desenvolveu uma máquina capaz de medir a frequência de óleos essenciais, plantas, animais e do corpo humano.



Average Brain Frequencies

If one or two of these points vary 3-10 MHz more than the other, a headache would begin.

58 MHz - Flu symptoms
55 MHz - Viral infection
42 MHz - Cancer



70-78 MHz

70-78 MHz

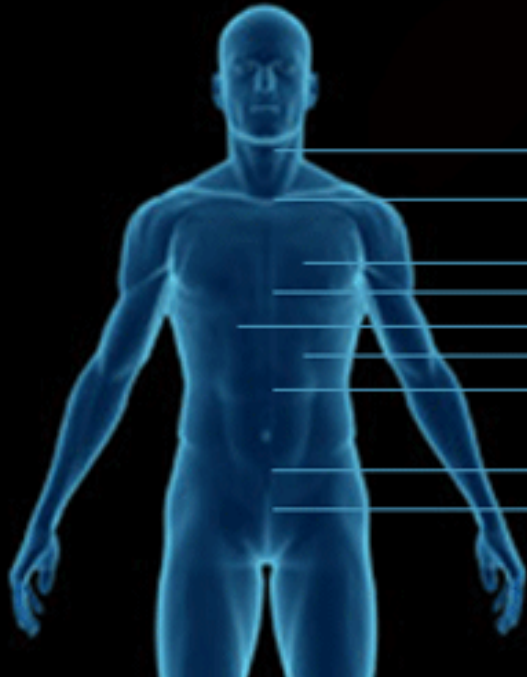
70-78 MHz

Could go over 100 MHz at certain times in some individuals.

Naps or sleep state would be much lower.

All figures during wake state and prior to eating a meal. After a meal these figures could drop 10 - 20% when the pancreas is producing high levels of digestive enzymes.

Average Body Organ Frequencies



Thyroid and Parathyroid Glands: 62-68 MHz

Thymus Gland: 65-68 MHz

Heart: 67-70 MHz

Lungs: 58-65 MHz

Liver: 55-60 MHz

Stomach: 58-65 MHz

Pancreas: 60-80 MHz

Descending Colon: 58-63 MHz

Ascending Colon: 50-60 MHz

Frequência vibratória de alguns óleos essenciais

- Rosa (Rosa damascena).....320 MHz
- Lavanda (Lavendula angustifolia).....118 MHz
- Mirra (Commiphora myrrha).....105 MHz
- Camomila azul/alemã (Matricaria recutita).....105 MHz
- Junípero (Juníperus osteosperma).....98 MHz
- Sândalo (Santalum album).....96 MHz
- Angélica (Angelica archangelica).....85 MHz
- Hortelã pimenta (Mentha peperita).....78 MHz
- Gábano (Ferula gummosa).....56 MHz
- Manjeriço (Ocimum basilicum).....52 MHz

Human Skin as Arrays of Helical Antennas in the Millimeter and Submillimeter Wave Range

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Givat Ram, 91904, Jerusalem, Israel²The Interdisciplinary Center for Neural Computation, The Hebrew University of Jerusalem,
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(Received 22 August 2007; published 27 March 2008)

Recent studies of the minute morphology of the skin by optical coherence tomography showed that the sweat ducts in human skin are helically shaped tubes, filled with a conductive aqueous solution. A computer simulation study of these structures in millimeter and submillimeter wave bands show that the human skin functions as an array of low- Q helical antennas. Experimental evidence is presented that the spectral response in the sub-Terahertz region is governed by the level of activity of the perspiration system. It is also correlated to physiological stress as manifested by the pulse rate and the systolic blood pressure.

DOI: 10.1103/PhysRevLett.100.128102

PACS numbers: 87.50.S-, 87.90.+y

Experimental evidence indicating that the electromagnetic properties of the human skin in the sub-Terahertz frequencies are governed by its morphology is henceforth presented.

The human skin is the largest organ of the body, designed as the primary interface, utilizing numerous of functions and interactions between us and our environment. The complexity of the multilayered skin morphology provides an extremely broad range of features of sensors that utilize a number of physical phenomena. One of these skin features is the perspiration system that traditionally is mainly considered for body thermoregulation [1]. Its main components are sweat glands embedded into the dermis and connecting through the epidermis with the pores on the surface of the stratum corneum by ducts, filled with a conductive aqueous solution. The general illustration of sweat glands presents a convoluted arrangement for the sweat gland and a more or less straight tube for the duct [1,2]. In recent investigations of the subcutaneous morphology of the human skin by optical coherent tomography [3,4], it was found that the sweat duct is in fact a remarkably arranged helical conductive tube (Fig. 1). This, together with the fact that the dielectric permittivity of the dermis is higher than that of the epidermis, brings forward the supposition that as electromagnetic entities, the sweat ducts could be regarded as low- Q helical antennas. Inherent to this supposition is the requirement that the duct possesses an electrical conductance mechanism that is effective at the extremely high frequency (EHF) range. Even though the ducts are filled with conducting electrolytes, the ions mobility rates associated with sweat are slow compared to the characteristic frequencies under consideration. A mechanism that qualifies for such a requirement is fast proton hopping through distributed H -bond networks along the duct surface. It is well established that

When the potential drop caused by the difference in pH values between the skin surface and the dermis is taken into consideration [2], such hopping can account for the ac conductivity that is necessary for the sweat ducts to yield an electromagnetic response in the EHF range. Moreover, it is known that the human skin contains approximately 2 to 5×10^6 eccrine sweat glands distributed over most of the body, with higher density in several areas such as on the palms of the hand, the forehead, and on the soles of the feet [7,8]. As each gland is connected to the skin surface by a helical sweat duct, the skin organ in its entirety can be regarded as an array of helical antennas that operate in the EHF range. It has been ascertained that the level of sweating has a dominant effect on the conductance parameters of the various components of the skin tissue. As pointed out above, these parameters strongly affect the spectral response of the skin organ. Hence, it is predicted that the physiological and psychological parameters that are known to be expressed in the activity of the perspiration system [9]

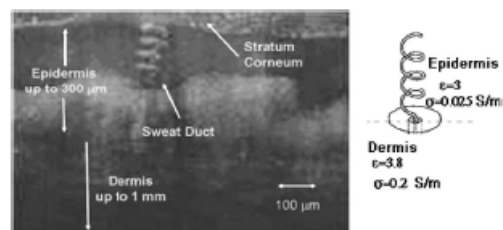


FIG. 1. 3D optical coherence tomography image (reproduced with permission from ISIS GmbH) of a single human eccrine sweat gland embedded in the human skin and a schematic presentation of the duct as a helical antenna [20] embedded in the skin, where the dermis-epidermis interface acts as a dielectric

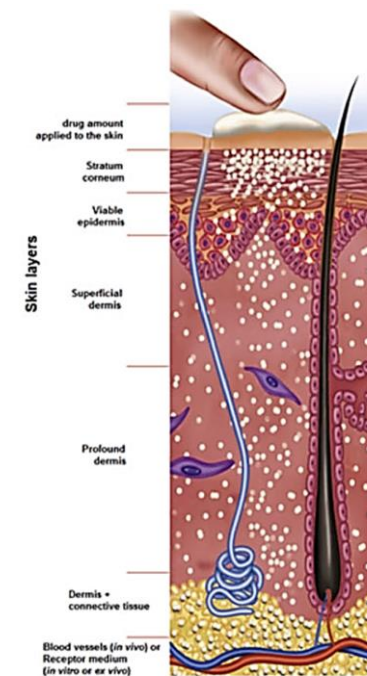
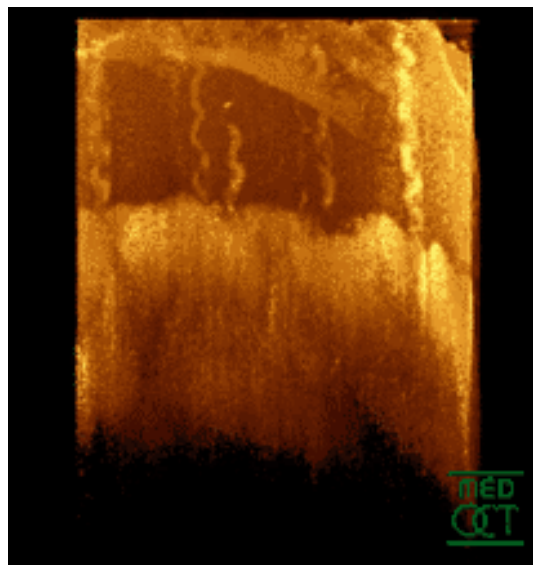
DUTOS DO SUOR COMO ANTENAS GERADORAS DE ELETROMAGNETISMO

Estudos recentes sobre a minuciosa morfologia da pele por tomografia de coerência óptica mostraram que os dutos do suor na pele humana são tubos com forma helicoidal, preenchidos com uma solução aquosa condutora.

Um estudo de simulação por computador dessas estruturas em bandas de ondas milimétricas e submilimétricas mostra que a pele humana funciona como um conjunto de antenas helicoidais que operam na frequência sub-terahertz.

No espectro eletromagnético, a radiação terahertz localiza-se entre as microondas e a radiação infravermelha, nas frequências entre 300 bilhões até 3 trilhões de ciclos por segundo.

Óleos essenciais são absorvidos pela pele e podem chegar facilmente a estes dutos, interferindo na informação eletromagnética gerada.



The Helical Structure of Sweat Ducts: Their Influence on the Electromagnetic Reflection Spectrum of the Skin

Itai Hayut, Alexander Puzenko, Paul Ben Ishai, Alexander Polzman, Aharon J. Agranat, and Yuri Feldman

Abstract—The helical structure of human eccrine sweat ducts, together with the dielectric properties of the human skin, suggested that their electromagnetic (EM) properties would resemble those of an array of helical antennas. In order to examine the implications of this assumption, numerical simulations in the frequency range of 100–450 GHz, were conducted. In addition, an initial set of measurements was made, and the reflection spectrum measured from the skin of human subjects was compared to the simulation results. The simulation model consisted of a three layer skin model (dermis, epidermis, and stratum corneum) with rough boundaries between the layers and helical sweat ducts embedded into the epidermis. The spectral response obtained by our simulations coincides with the analytical prediction of antenna theory and supports the hypothesis that the sweat ducts can be regarded as helical antennas. The results of the spectrum measurements from the human skin are in good agreement with the simulation results in the vicinity of the axial mode. The magnitude of this response depends on the conductivity of sweat in these frequencies, but the analysis of the phenomena and the frequencies related to the antenna-like modes are independent of this parameter. Furthermore, circular dichroism of the reflected electromagnetic field is a characteristic property of such helical antennas. In this work we show that: 1) circular dichroism is indeed a characteristic of the simulation model and 2) the helical structure of the sweat ducts has the strongest effect on the reflected signal at frequencies above 200 GHz, where the wavelength and the dimensions of the ducts are comparable. In particular, the strongest spectral response (as calculated by the simulations and measured experimentally) was noted around the predicted frequency (380 GHz) for the axial mode of the helical structure.

Index Terms—Electromagnetic (EM) simulations, skin, sub-mm wave band, sweat ducts.

I. INTRODUCTION

WITH the advent of modern imagery of living human skin, using methods such as optical coherence tomography (OCT), it was found that the human eccrine sweat duct has

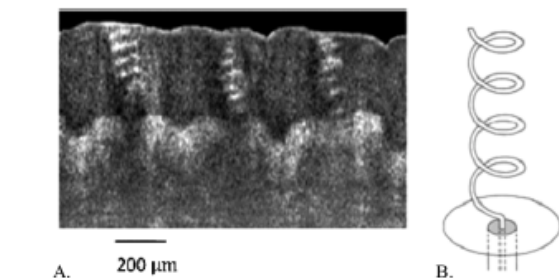
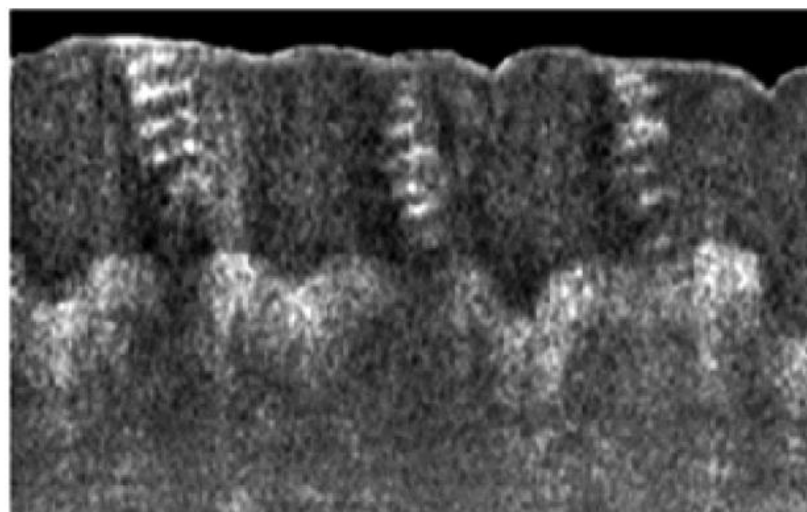
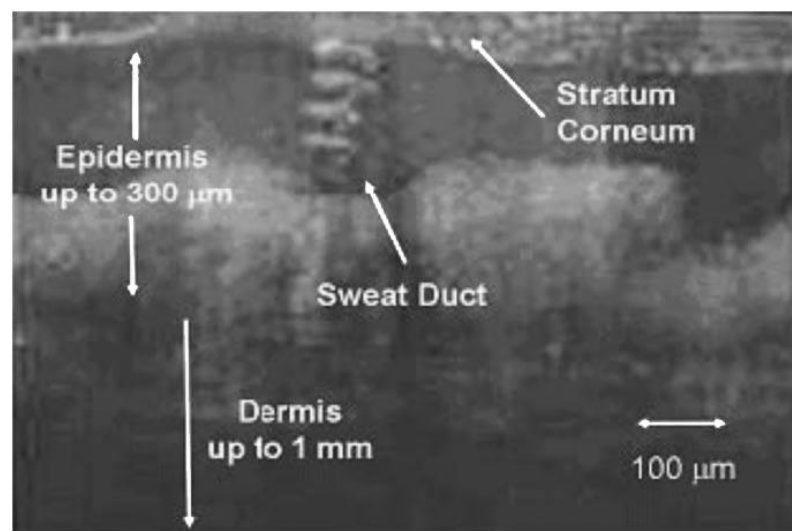


Fig. 1. Optical coherent tomography imaging of (a) the human skin (reproduced with permission from ISIS GmbH) and (b) a sketch of a helical antenna (see Balanis [12], reproduced with permission from John Wiley & Sons Ltd.). The helical sweat ducts are embedded within the epidermis. The roughness between the epidermis and the dermis is of the same order of magnitude as the sweat ducts length.

previous works, where changes in the electromagnetic reflection of the skin were observed as a result of elevated activity of the sweat glands, in a frequency range of 70–110 GHz [3], [4]. It is reasonable to assume that the morphology and electromagnetic properties of the skin have an impact on the reflected signal in this frequency range, as well as in higher frequencies in the sub-millimeter regime. To explore this assumption one must consider the structure of the skin.

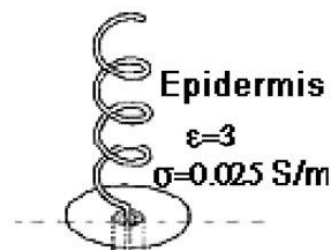
We consider a skin model, which is composed of different layers: 1) outermost stratum corneum (SC); 2) intermediate epidermis; and 3) inner dermis. For the purposes of investigating its electromagnetic response it is necessary to take into account the conductivity and permittivity values of each layer. This can be achieved by evaluating the bulk and bound water content in each layer (previously detailed in [4]).

One of the principal roles of the human skin is the thermoregulation of the body by sweat evaporation. Sweat is produced in the glands, located at the bottom of the dermis layer. The ec-

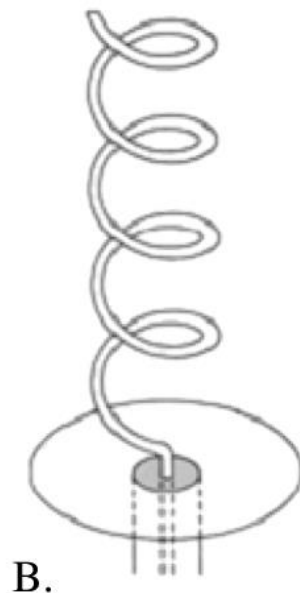


A.

200 μm



Dermis
 $\epsilon=3.8$
 $\sigma=0.2 \text{ S/m}$



B.

Reparo da pele à partir de células-tronco progenitoras de tecido epitelial estocadas nos dutos de suor

Sweat Gland Progenitors in Development, Homeostasis, and Wound Repair

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The human body is covered with several million sweat glands. These tiny coiled tubular skin appendages produce the sweat that is our primary source of cooling and hydration of the skin. Numerous studies have been published on their morphology and physiology. Until recently, however, little was known about how glandular skin maintains homeostasis and repairs itself after tissue injury. Here, we provide a brief overview of sweat gland biology, including newly identified reservoirs of stem cells in glandular skin and their activation in response to different types of injuries. Finally, we discuss how the genetics and biology of glandular skin has advanced our knowledge of human disorders associated with altered sweat gland activity.

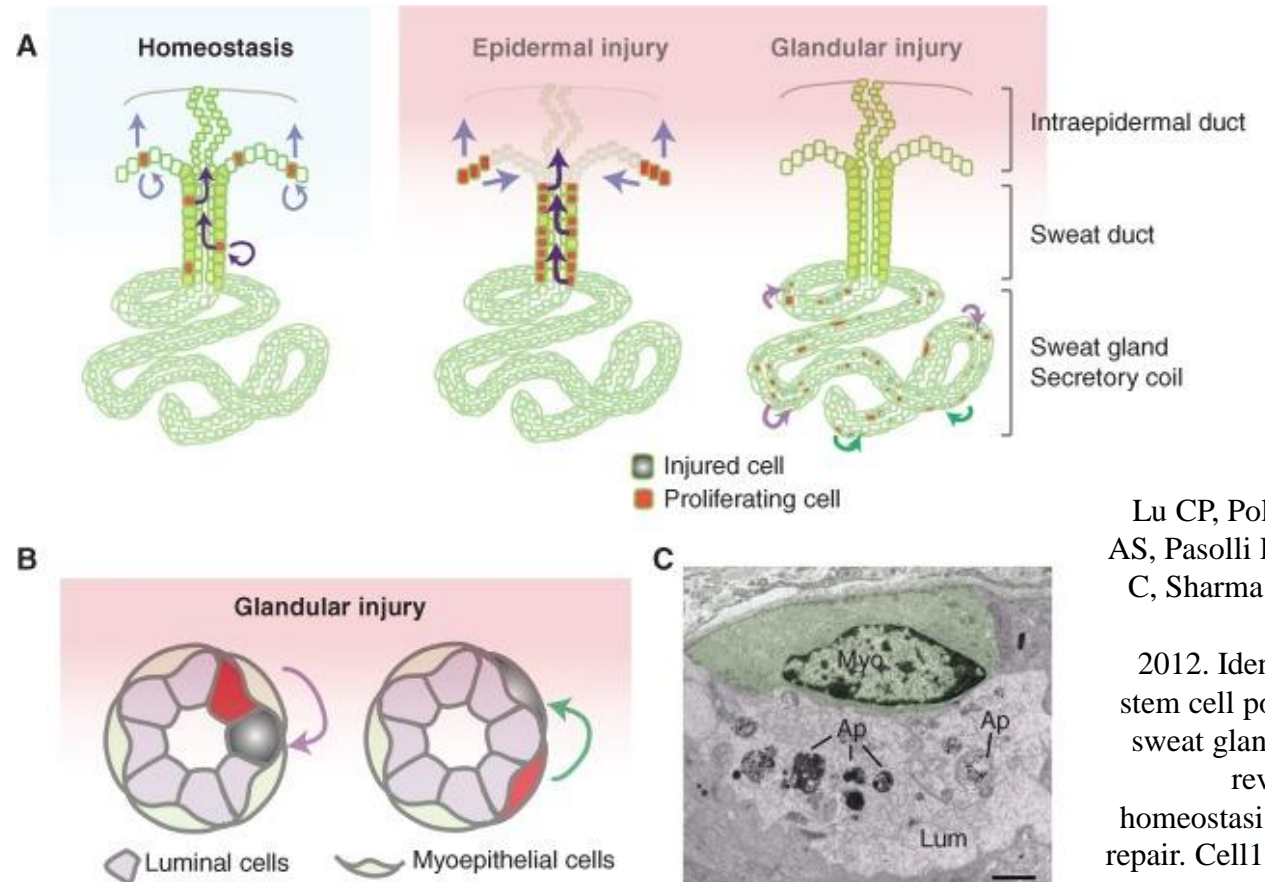
Sweating plays an important role in the regulation of human body temperature through dissipating thermal energy from the skin surface when water in the sweat evaporates. Sweat counteracts heat stress after we exercise and allows us to survive in extreme climates. Hypohidrosis (also referred to as anhidrosis) is a condition in which patients have deficient or absent sweating. On heat stress, body temperature in these patients can increase to dangerous levels leading to hyperthermia, heat exhaustion, heat stroke, and potentially death (Sato et al. 1989a; Cheshire and Freeman 2003). Conversely, hyperhidrotic patients generate excessive sweat that can cause various levels of discomfort and stress, ranging from dehydration and skin infections to social embarrassment.

Human skin has two major types of sweat glands: eccrine and apocrine (Fig. 1). In eccrine

glands, the duct opens onto the skin surface enabling the gland to secrete a water- and salt-based liquid. In contrast, the apocrine sweat gland is an appendage of the hair follicle and releases fluid through the follicle orifice. Moreover, apocrine sweat glands release an oily substance by shearing off cell parts as necrobiotic secretions (Sato et al. 1989a; Wilke et al. 2007). A third type of sweat gland, termed apoeccrine sweat gland, has been reported to exist in axillae areas of the human body (Sato et al. 1987), but, to date, this remains unsubstantiated.

In humans, eccrine sweat glands are the only ones distributed widely on the body surface with as many as $\sim 700/\text{cm}^2$ in adult skin from the palms and soles. In contrast, apocrine glands are restricted to very hairy body regions, such as axillae and perineum. The density of apocrine glands is much less compared to ec-

Quando uma grande porção de epiderme é ferida ou removida, o aumento da proliferação de novas células ocorre em células basais vizinhas saudáveis no duto de suor e na epiderme. Essas células (e / ou sua progênie) migram e diferenciam rapidamente para reparar a área lesada.



Lu CP, Polak L, Rocha AS, Pasolli HA, Chen S-C, Sharma N, Blanpain C, Fuchs E. 2012. Identification of stem cell populations in sweat glands and ducts reveals roles in homeostasis and wound repair. *Cell* 150: 136–150

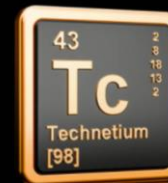
Editors: Anthony E. Oro and Fiona M. Watt

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OS CANAIS ELETROMAGNÉTICOS NOS MERIDIANOS DE ACUPUNTURA



EDITORIAL

Nuclear Medicine and Acupuncture Message Transmission

For several years, a number of authors have attempted to scientifically investigate the field of acupuncture, specifically the anatomic relevance of acupuncture points and their connections, known as "meridians."

It has long been known that skin impedance varies significantly in areas related to the classic acupuncture points (1,2). Correlations have also been made between the acupuncture "meridians" and subjective physical sensations in areas of specific dermatological lesions (3).

We have attempted since 1978 to study the migration of radioactive tracers injected at acupuncture points using a scintillation camera coupled to a computer system with image analysis capability (4). Other authors have also examined this subject and obtained reproducible results, including Bagu (5) and Tiberu (6) in Romania, Lafont and Munsch in France and Jia-He Tian and Gu (7) in China. Finally, Dr. S. Kovacs in Barcelona, Spain has obtained similar results in the dog using an identical protocol, as described in this month's issue of the *Journal* (8).

The most commonly used radioactive tracer for these studies has been ^{99m}Tc as sodium pertechnetate. The injection at the acupuncture point, localized with anatomical landmarks, palpation and measurement of local

impedance, is performed with hyperdermic needles of 5/10 mm, at a depth of 3–5 mm, as determined by a specific sensation felt by the subject. The injected volume must be as small as possible, approximately 0.05 ml with an activity of 10–20 MBq.

These efforts have led in two directions: morphological and quantitative dynamic studies. Our work has been conducted in over 250 normal and abnormal subjects. Each experimental protocol has been carefully controlled.

Morphologically, most authors have reported that in analytical studies, a radiotracer injected at a control point shows no preferential migration after 5 min, and only a very slight centrifugal isotropic diffusion around the injection point.

Conversely, when the injection is performed at an acupuncture point, a linear migration is seen from the site of injection. For instance, when the injection is performed at the "Renal 7" acupuncture point (located on the internal side of the leg, above and behind the medial malleolus), the migration distance is 30 cm from the injection point proximally. Such migrations, arising from various acupuncture points located on both the upper and lower limbs, have always been found to follow identical pathways in both control subjects and in patients with various disease.

The pathways thus evidenced are anatomically superimposable with those described in traditional Chinese medicine under the name of "meridians." Twelve meridians are described

in traditional Chinese medicine in the upper and lower limbs. Preferential paths of radiotracer travel are found along these pathways.

Quantitative analyses performed on images and on blood sampled up to 60 min after injection, in both normal and abnormal subjects, show that less than 5% of radiotracer injected at the acupuncture point migrates along the preferential pathway. The remainder of the tracer shows a slow isotropic diffusion from the point of injection. This diffused component of the injected tracer does not produce a sufficient signal to noise ratio to constitute an interpretable image of any linear definable structure such as a vein or lymphatic vessel. However, 15–20 min after injection, uptake appears in organs for which the tracer has a high affinity, such as the thyroid and salivary glands for technetium.

Due to the energy of the ^{99m}Tc gamma photons, it is difficult to visualize the deeper pathway of the meridians in the upper body because of extensive soft tissue attenuation.

Similar results have been obtained using other radioactive tracers, such as ¹³³Xe, ²⁰¹Tl and ¹⁹⁷Hg. In man, no different molecular migratory behaviors between neutral molecules, anions or cations have been shown.

We have tried to establish the uniqueness of the observed pathways and thus eliminate a vascular or lymphatic explanation (9).

Experimental data suggest that these pathways do not correspond with vascular routes. The migration

Em 1985, Pierre de Vernejoul, da Universidade de Paris, realizou um experimento definitivo e muito citado. Ele usou um marcador radioativo, tecnécio 99m, que ele injetou em cobaias nos pontos clássicos de acupuntura. Ele então usou uma câmera de imagem de radiação gama para rastrear o movimento subsequente do isótopo. Ele conseguiu mostrar que isótopo migrou ao longo das linhas de meridianos, viajando rapidamente: uma distância de 30 cm em 4-6 minutos.

[P. de Vernejoul *et al.*, 'Etude Des Meridiens D'Acupuncture par les Traceurs Radioactifs', *Bull. Acad. Natle. Med.* Vol. 169 (22nd October 1985): 1071-5.]

Como controle ele fez uma série de injeções aleatórias na pele (não em pontos de acupuntura) e também injetou o isótopo diretamente nas veias e canais linfáticos. Não houve migração significativa do isótopo em outras áreas quando comparado ao ponto de acupuntura. O que esse estudo simples mas útil provou sem dúvida é que os meridianos são definitivamente "vasos" reais, mas não estão de acordo com as estruturas anatômicas macroscópicas.

Received Nov. 13, 1991; accepted Dec. 11, 1991.
For reprints contact: Pierre de Vernejoul, Service de Biophysique, et Médecine Nucléaire, C.H.U. Necker-Enfants Malades, F-75 743 Paris, Cedex 15, France.

Experimental Study on Radioactive Pathways of Hypodermically Injected Technetium-99m

Francisco M. Kovacs, Víctor Gotzens, Alicia García, Félix García, Nicole Mufraggi, David Prandi, Jorge Setoain, and Fidel San Román

Kovacs Foundation, Palma de Mallorca; Department of Morphological Sciences, Faculty of Medicine, University of Barcelona; Division of Nuclear Medicine, Hospital Clinic i Provincial, Barcelona; Department of Surgery, Faculty of Veterinary, Autonomous University of Barcelona, Spain

The objective of this study was to investigate the biological substrate of radioactive pathways of migration of hypodermically injected ^{99m}Tc into points of low electrical resistance. Sixteen anesthetized adult male beagles were used. Control and test points were defined by comparing their electrical resistance to that of the pinna. Seventy-three experiments of three different types were performed: (1) separate hypodermic injections of [^{99m}Tc] sodium pertechnetate, ^{201}Tl -chloride, ^{131}I Na and ^{99m}Tc -rhenium sulfide into control and test points; (2) simultaneous injections of [^{99m}Tc]sodium pertechnetate and ^{201}Tl chloride into control and test points; and (3) intravascular injections of $^{99m}\text{TcO}_4$ into blood vessels underlying test points. Only the hypodermic injection of ^{99m}Tc into points of low electrical resistance gave rise to a specific radioactive pathway characterized by rapid and longitudinal migration, clearly independent of background activity. The specific radioactive pathway detected is not the result of diffusion of the radiotracer through nerves, veins or lymphatic vessels, but its trajectory coincides with that described for one of the acupuncture meridians in the dog.

J Nucl Med 1992; 33:403-407

In human beings, hypodermic injection of ^{99m}Tc into points of low electrical resistance gives rise to rapid linear diffusion of the radioactive tracer. The site of these points

found in the literature. Thus, the purpose of this study was to investigate the presence of radioactive paths in the dog and to assess if diffusion of the radioactive tracer occurs through veins or lymphatic vessels.

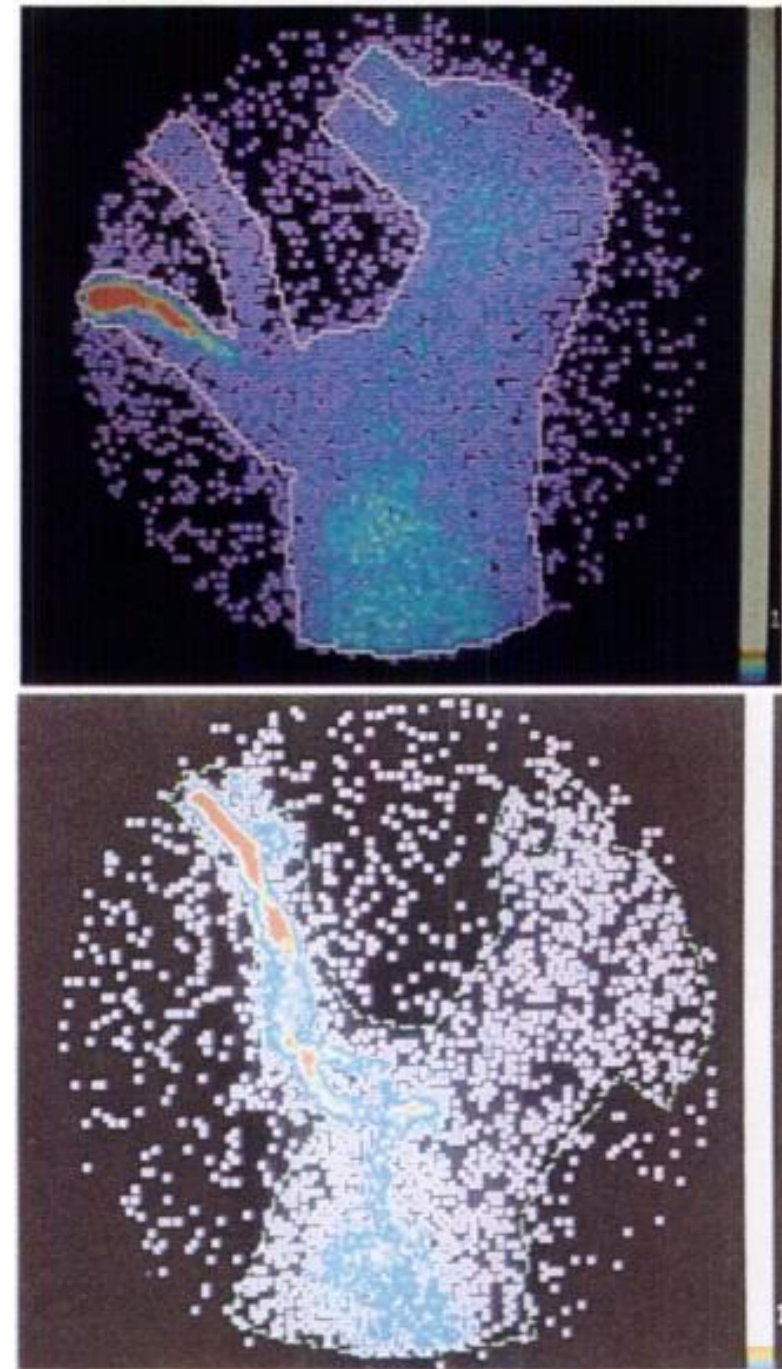
MATERIALS AND METHODS

Sixteen healthy adult male beagles were used in this study. They were preanesthetized using acepromazine maleate (0.2 mg/kg) and atropine sulfate (0.05 mg/kg). Anesthesia was induced using thiopental sodium intravenously (9 mg/kg). Animals were then intubated and anesthesia was maintained using oxygen, nitrous oxide, and halothane.

Control injection points were detected as having the same electrical resistance compared with that of the pinna, where no acupuncture points have been described. They were located on the animal's back and on the dorsal aspect of the animal's metacarpus and metatarsus at least 1 cm distant from the trajectories of acupuncture meridians described for the dog (Darras JC, personal communication) (8).

Test injection points were detected as having a lower electrical resistance compared with that of the pinna. These were located on the dorsal aspect of the animal's metacarpus and metatarsus, coinciding with one of the acupuncture meridians described for the dog. Control and test points on the dorsal aspect of the metacarpus and metatarsus were 1.5 cm apart.

A total of 73 experiments were carried out (Table 1). In 58 experiments, a 0.5-mm hypodermic needle was introduced to a depth of 4 mm at a right angle to the skin surface. The chosen





RESEARCH ARTICLE

A Discovery of Low Hydraulic Resistance Channel Along Meridians

Wei-Bo Zhang^{1*}, Yu-Ying Tian¹, Hong Li¹, Jia-He Tian², Ming-Fu Luo¹, Fa-Liang Xu², Guang-Jun Wang¹, Tao Huang¹, Yi-Hui Xu¹, Rui-Hong Wang¹

¹Institute of Acupuncture and Moxibustion, China Academy of Chinese Medical Science, Beijing, China

²PLA of China 301 Hospital, Beijing, China

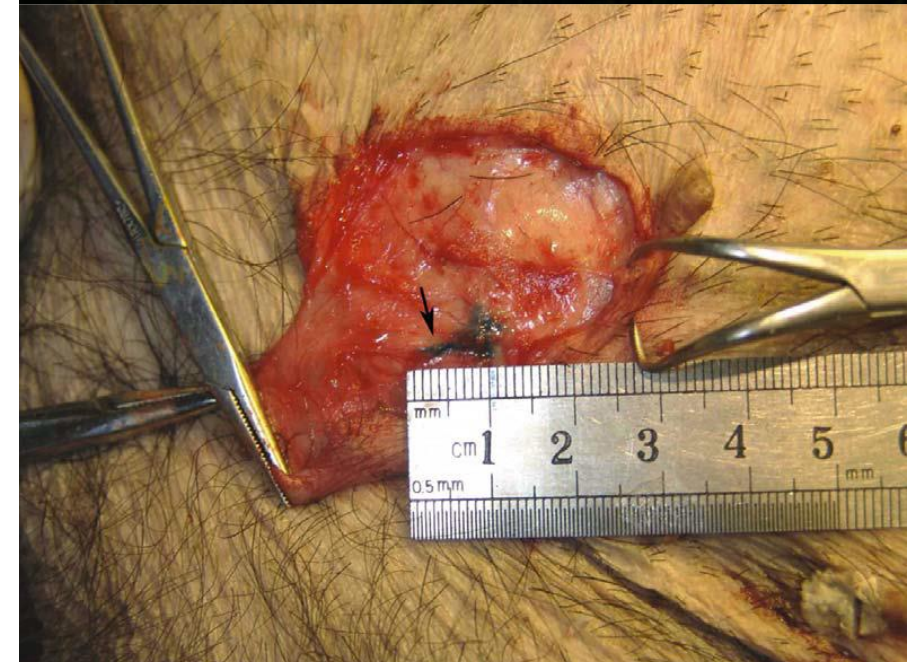
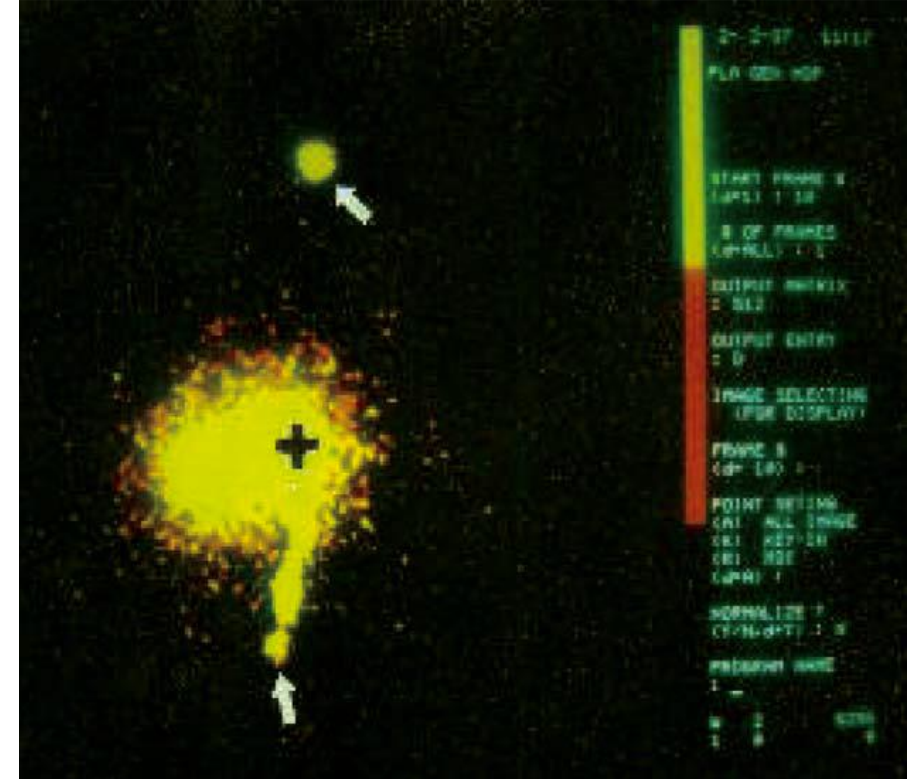
Received: Apr 1, 2008
Accepted: May 13, 2008

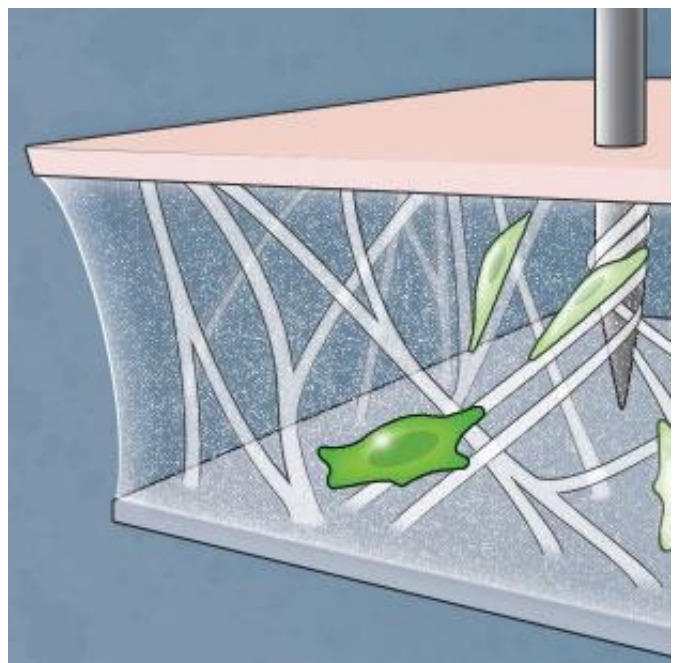
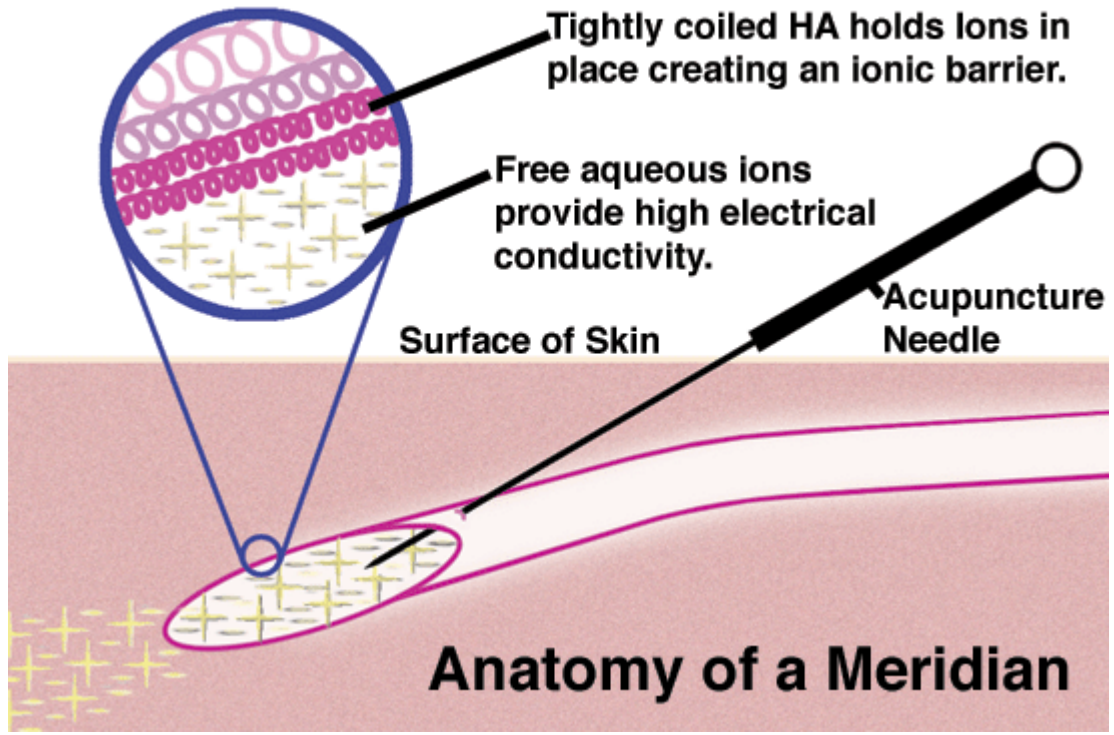
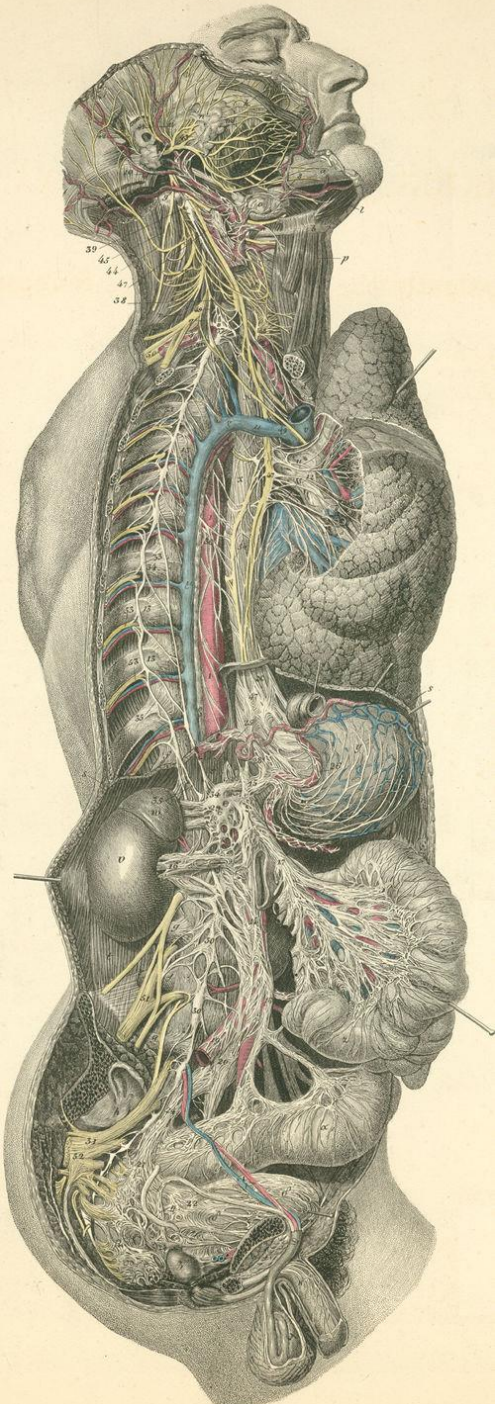
KEY WORDS:

interstitial fluid
pressure wave;
isotope migration;
low hydraulic
resistance channel;
meridians;
mini pigs

Abstract

A hydro-mechanic model was put forward to study the fundamental nature of acupuncture meridians. The basic state of low hydraulic resistance was tested on humans and mini pigs using three methods. The first, a modified Guyton's method, proved that there was lower hydraulic resistance on meridians compared with non-meridians. The second scanning method involved a single pressure transducer that can find the lowest resistance point in tissue, and the third method used two transducers and provided a more stable measurement. Using the latter method, low hydraulic resistance points were found very close to low impedance points along meridians. The transmission of artificial interstitial fluid pressure waves was measured to examine their connection to the low resistance points, with the result that a good connection between the points was confirmed. This means the points form channels along the meridians that we refer to as low hydraulic resistance channels. The channel was imaged through isotopic tracing and a migration of isotope ^{99m}Tc could be found along the channel. The layer of the channel was detected by injecting Alcian blue and the track was found beneath the skin. All of the above experiments suggest the existence of a new type of channel in living tissues that has not yet been described in modern science, but coincides quite well with the Qi channel theory of traditional Chinese medicine.

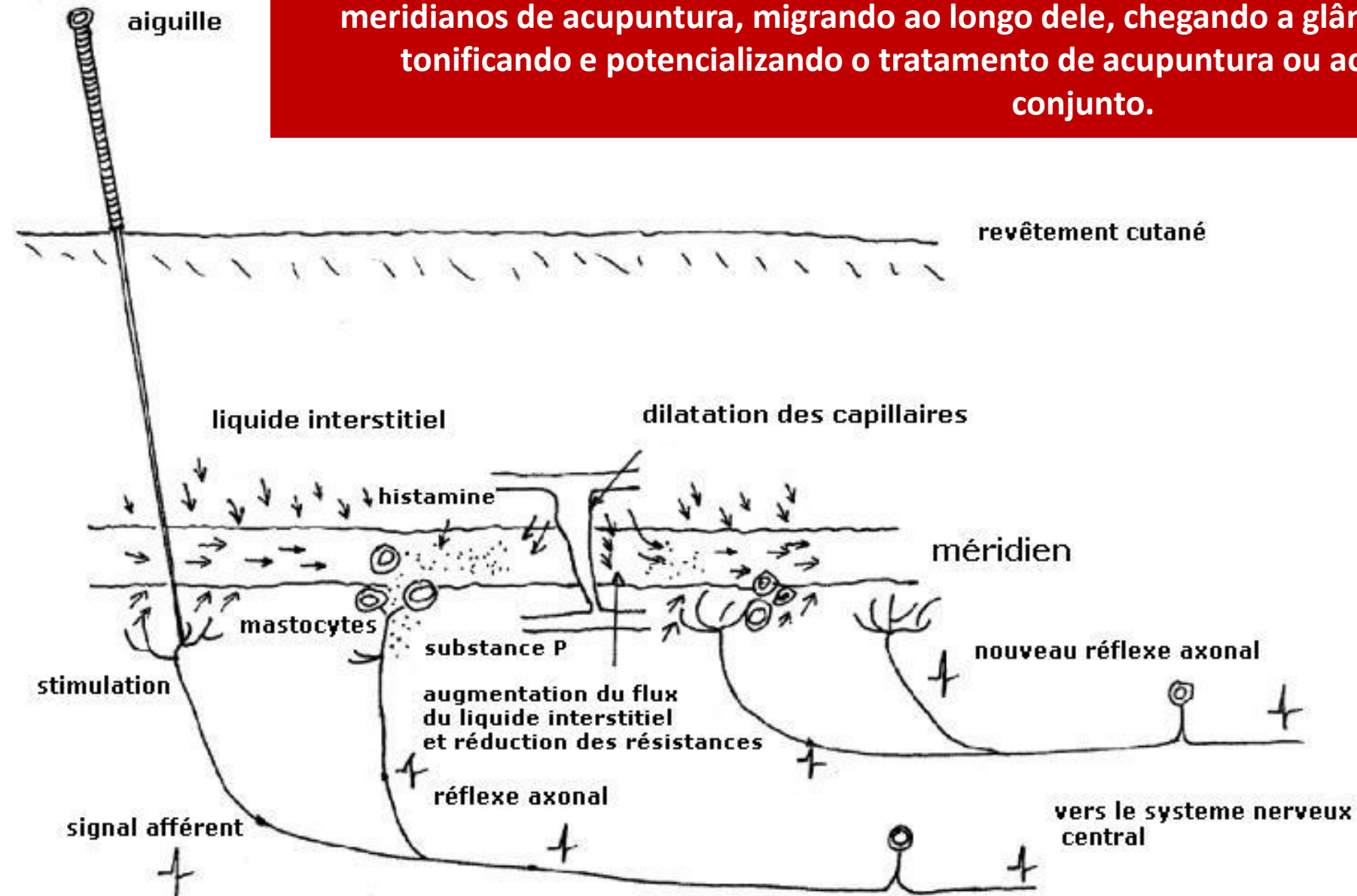




Ácido hialurônico (AH) liga-se água e íons para criar tubos de isolamento elétrico dentro dos quais livres íons aquosos proporcionam percursos altamente condutores, os meridianos de acupuntura.

Em um experimento, o fluido extraído de um ponto de acupuntura continha mais de dez vezes o nível sanguíneo de adrenalina e altas concentrações de DNA, aminoácidos, ácido hialurônico, dezesseis tipos de nucleotídeos livres, corticosteróides, estrogênio e outras substâncias hormonais em níveis muito diferentes daqueles normalmente encontrados na corrente sanguínea. Isso sugere alguma ligação entre o sistema meridiano e as glândulas endócrinas do corpo.

Ao penetrarem na pele, os óleos essenciais conseguem facilmente adentrar nos canais dos meridianos de acupuntura, migrando ao longo dele, chegando a glândulas, órgãos, revitalizando-os, tonificando e potencializando o tratamento de acupuntura ou acupressura quando feito em conjunto.



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- LES SOLUTIONS POUR FAIRE FACE À 120 MAUX DU QUOTIDIEN : BRÛLURES D'ESTOMAC, CELLULITE, DIABÈTE, STRESS...

LE DUC
EDITIONS



Michel
ODOUL
Elske
MILES

La phyto-
énergétique

Stimulez vos points
d'acupuncture par
les huiles essentielles

■
Albin Michel

Exemplo de livros sobre a associação de óleos essenciais e medicina chinesa com breve publicação no Brasil pela editora Laszlo.

BIOFÓTONS

É de conhecimento da ciência que os seres vivos possuem a capacidade de emissão de partículas de biofótons

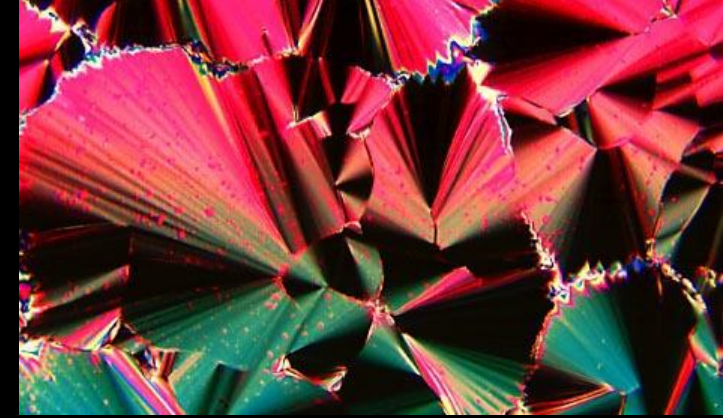


Vagalumes, animais marinhos de grande profundidade, águas vivas, entre outros seres emitem biofótons visíveis a olho nu.

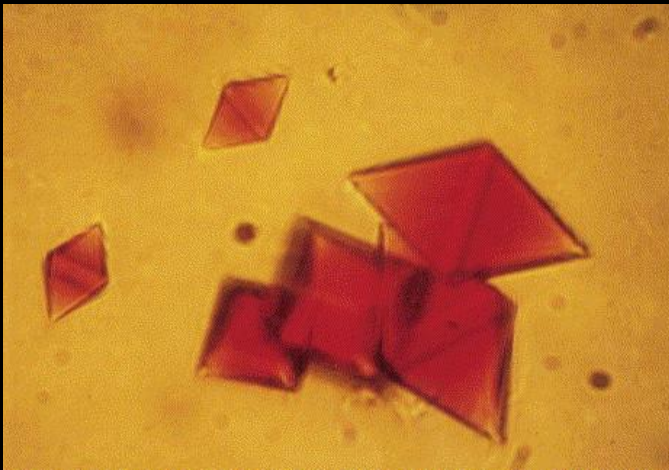
Mas os organismos vivos possuem a capacidade de emissão de biofótons de baixa intensidade não visíveis a olho nu. Cientistas do Instituto de Biofótons da Rússia descobriram que os biofótons são emitidos a partir da cromatina presente no interior do núcleo celular, ou seja provém do DNA



CRISTAIS LÍQUIDOS

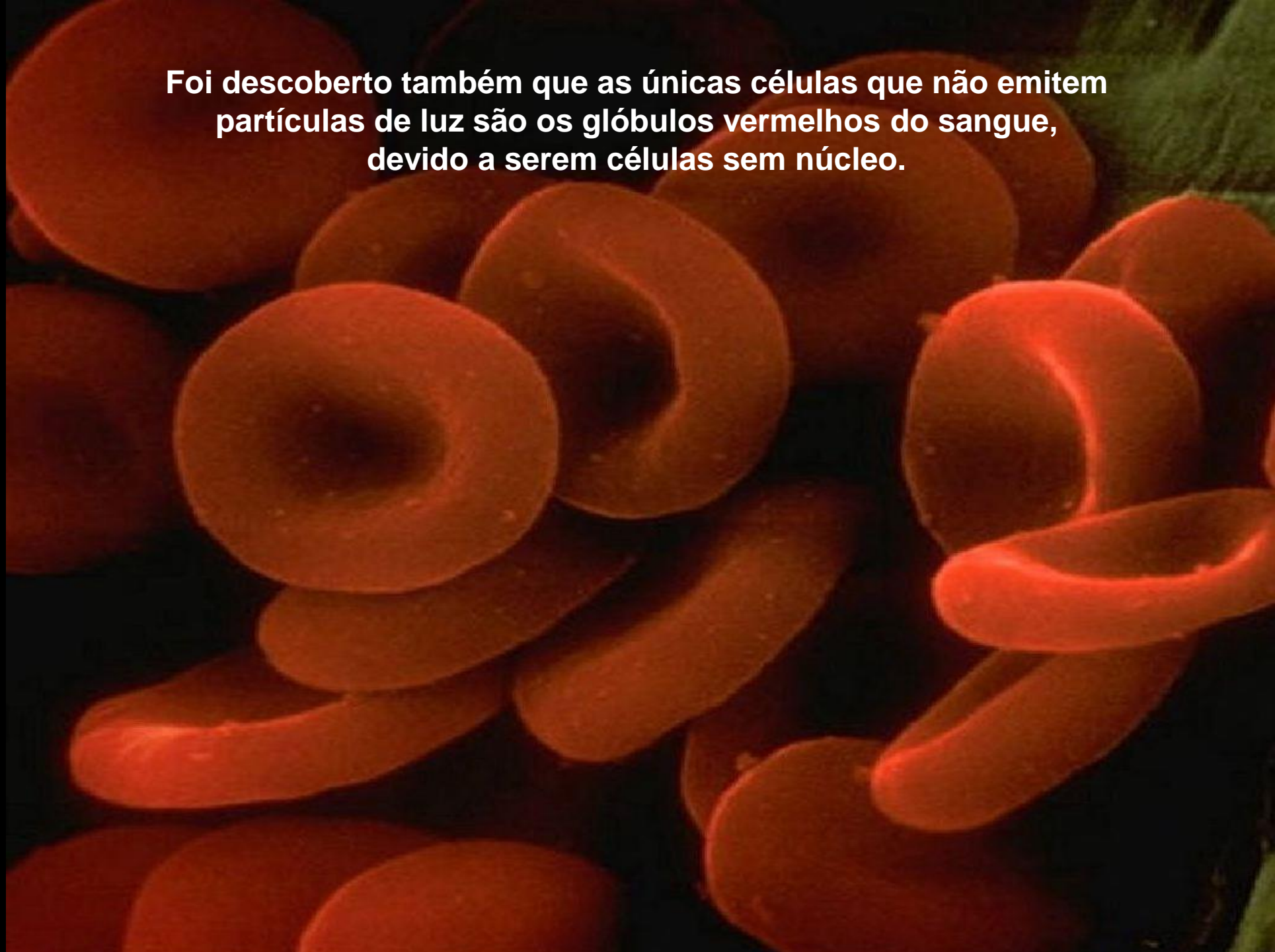


Cristais de DNA

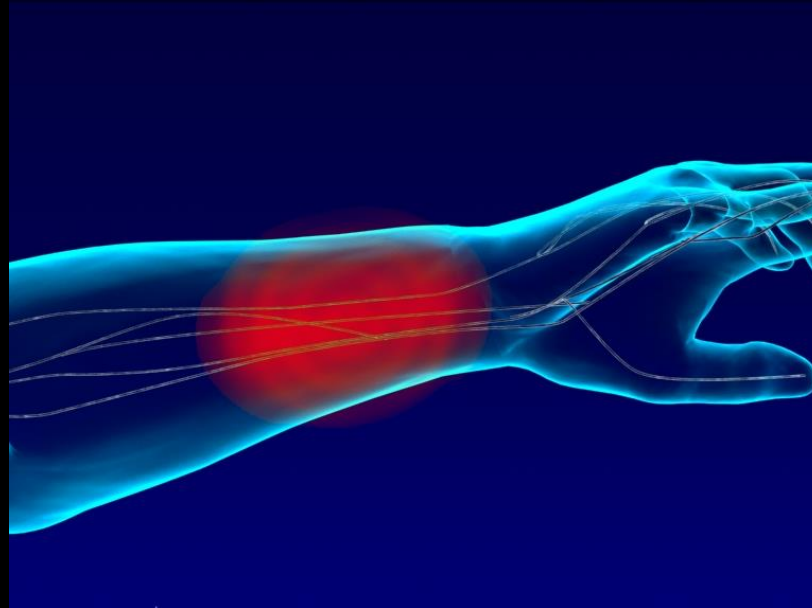


Cristais de hemoglobina

Foi descoberto também que as únicas células que não emitem partículas de luz são os glóbulos vermelhos do sangue, devido a serem células sem núcleo.



Uma pesquisa feita com o uso de luz UV exposta sobre o braço direito de uma pessoa com psoríase, demonstrou que após cessada a emissão da luz, os biofótons emitidos pelo corpo na área se alteram, respondendo ao tratamento. Notou-se também de forma interessante que outras áreas do corpo também manifestaram alterações na irradiação de biofótons. Isso traz a idéia de uma “comunicação celular fotônica”, ou seja, as células se comunicam utilizando luz. A formação de novos isômeros na cadeia do “alfabeto de carboidratos” possui estreita relação também com este processo em níveis internos no corpo.

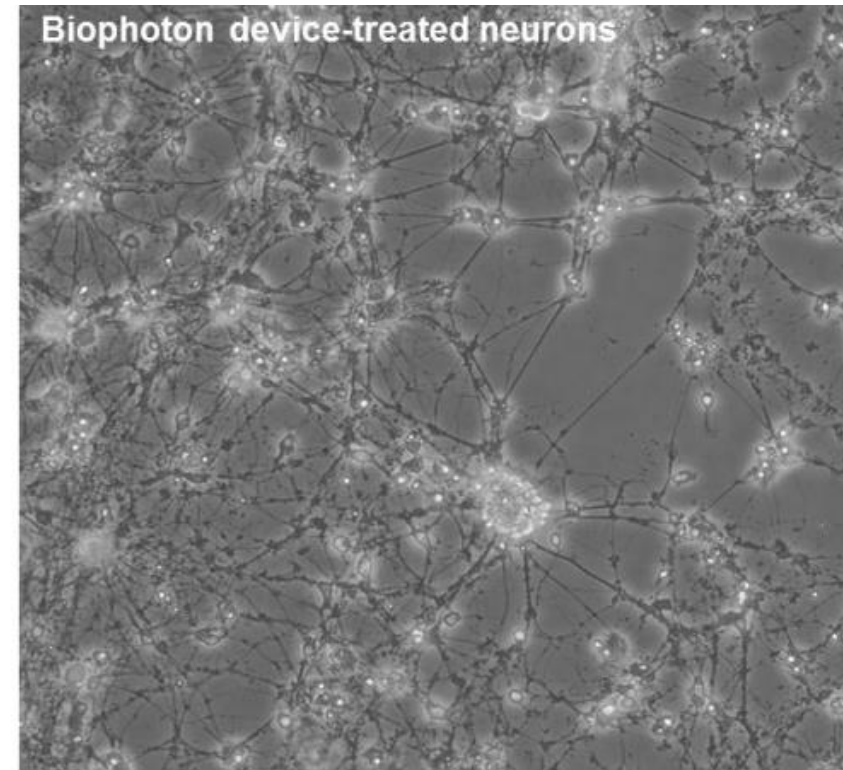
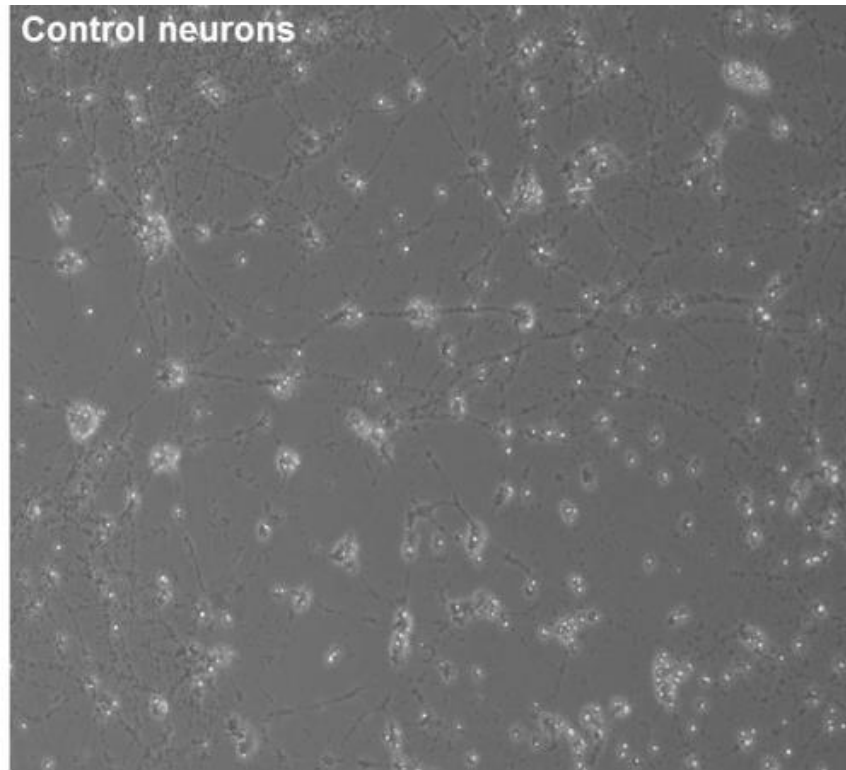


A emissão de biofótons pelas células do corpo provém de processos metabólicos e à partir da geração nas células de radicais livres na lipoperoxidação. A observação de que a emissão de biofótons de intensidade específica por parte de células saudáveis mostrou que as células utilizam-se de biofótons para comunicarem-se umas com as outras, o que deu origem ao que hoje os cientistas chamam de

COMUNICAÇÃO FOTÔNICA CELULAR

Ou seja, as células usam luz para conversarem entre si!



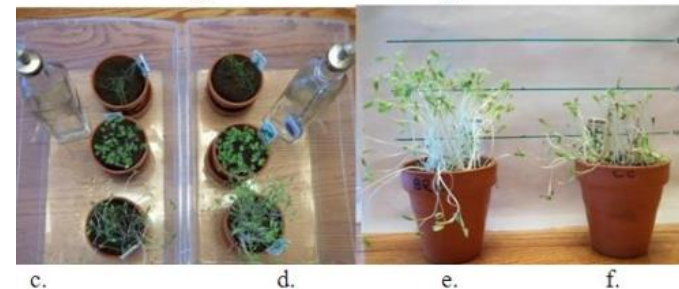


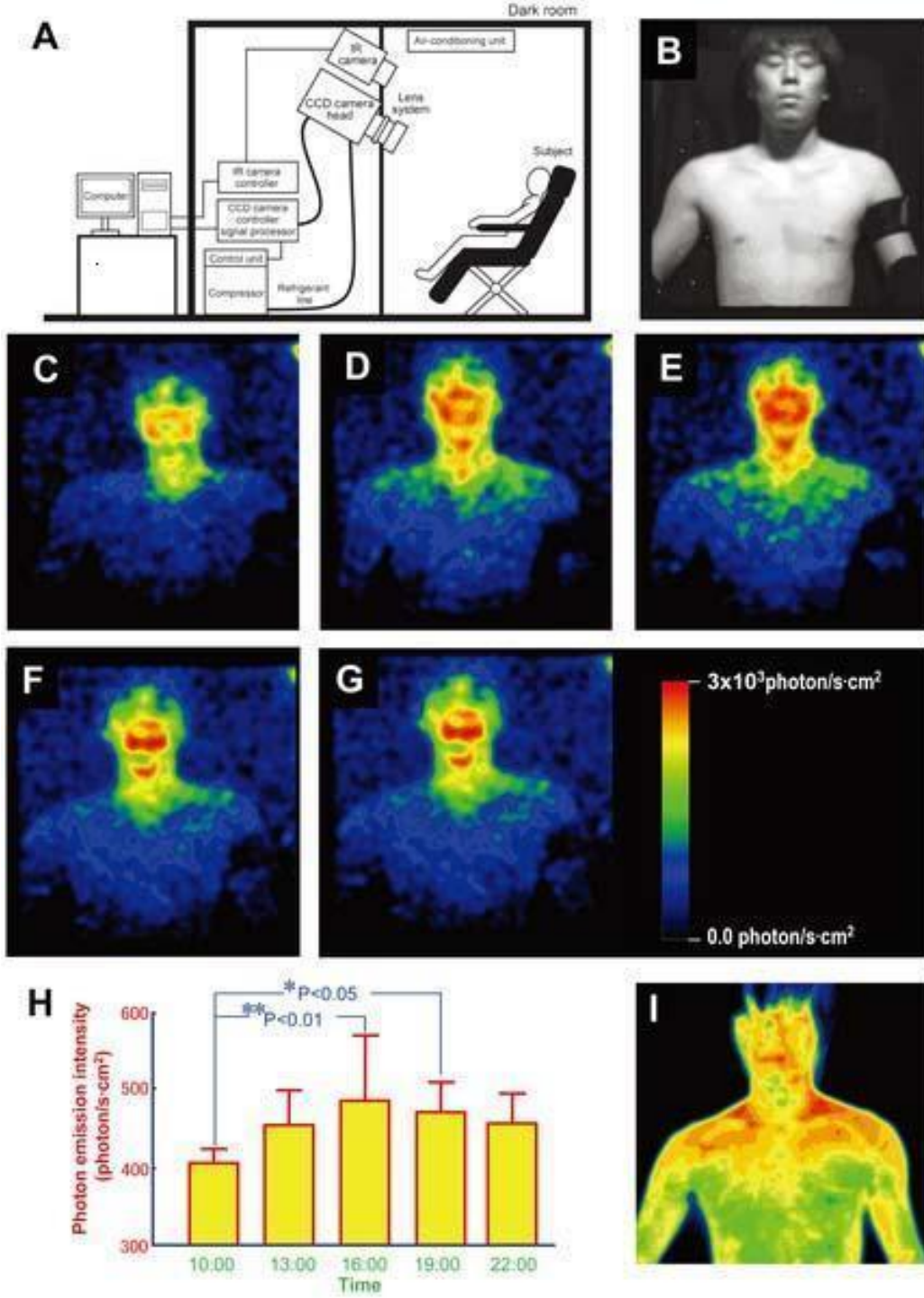
Bright field microscope pictures, magnification = 100 x

If neuronal growth and survival would be affected by Biophoton device treatment – there was found a significant increase in neuronal growth and synaptic interactions between neurons. There was a significant increase in possible neuronal interactions as was shown by an increase in the number of synaptic contacts between treated neurons as compared to control, untreated neurons (figures 6 and 7). <http://www.biontology.com/wp-content/uploads/2012/10/Final-MSc-Thesis-F-Dietrich-Vastenburger-.pdf>

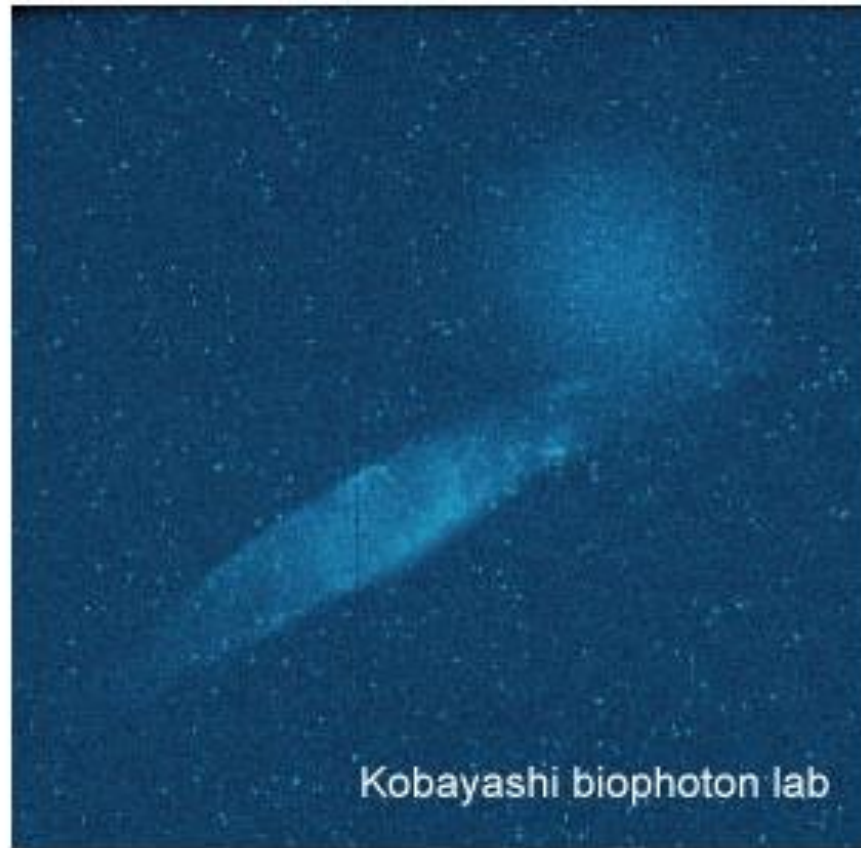


Figure 1. *Communication between plants:* the interaction of bio-energy-information fields between two ivy plants (photo scanned with a computational program from NASA) by professor Marioara Godeanu) [cf. [Ciupa, 2005]. The informational-wave undulating relationship between the two systems, which transfers mutually the information from one to the other, is clearly evident.





Schematic illustration of experimental setup that found the human body, especially the face, emits visible light in small quantities that vary during the day. B is one of the test subjects. The other images show the weak emissions of visible light during totally dark conditions. The chart corresponds to the images and shows how the emissions varied during the day. The last image (I) is an infrared image of the subject showing heat emissions. Credit: Kyoto University; Tohoku Institute of Technology

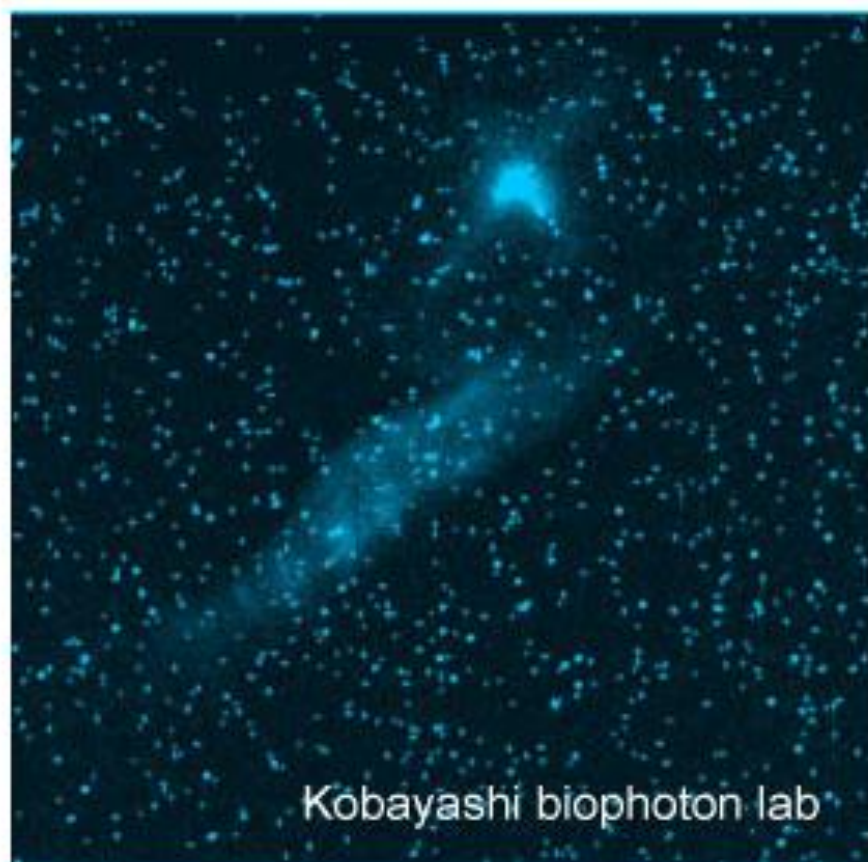


Biophoton image of a germinating soybean



Picture of the sample

Biophoton image of a germinating soybean under intact condition. The bright region which corresponds to the hypocotyl area with higher activity of respiration, indicating that biophoton carry the information of activity of energetic metabolism of living cells.

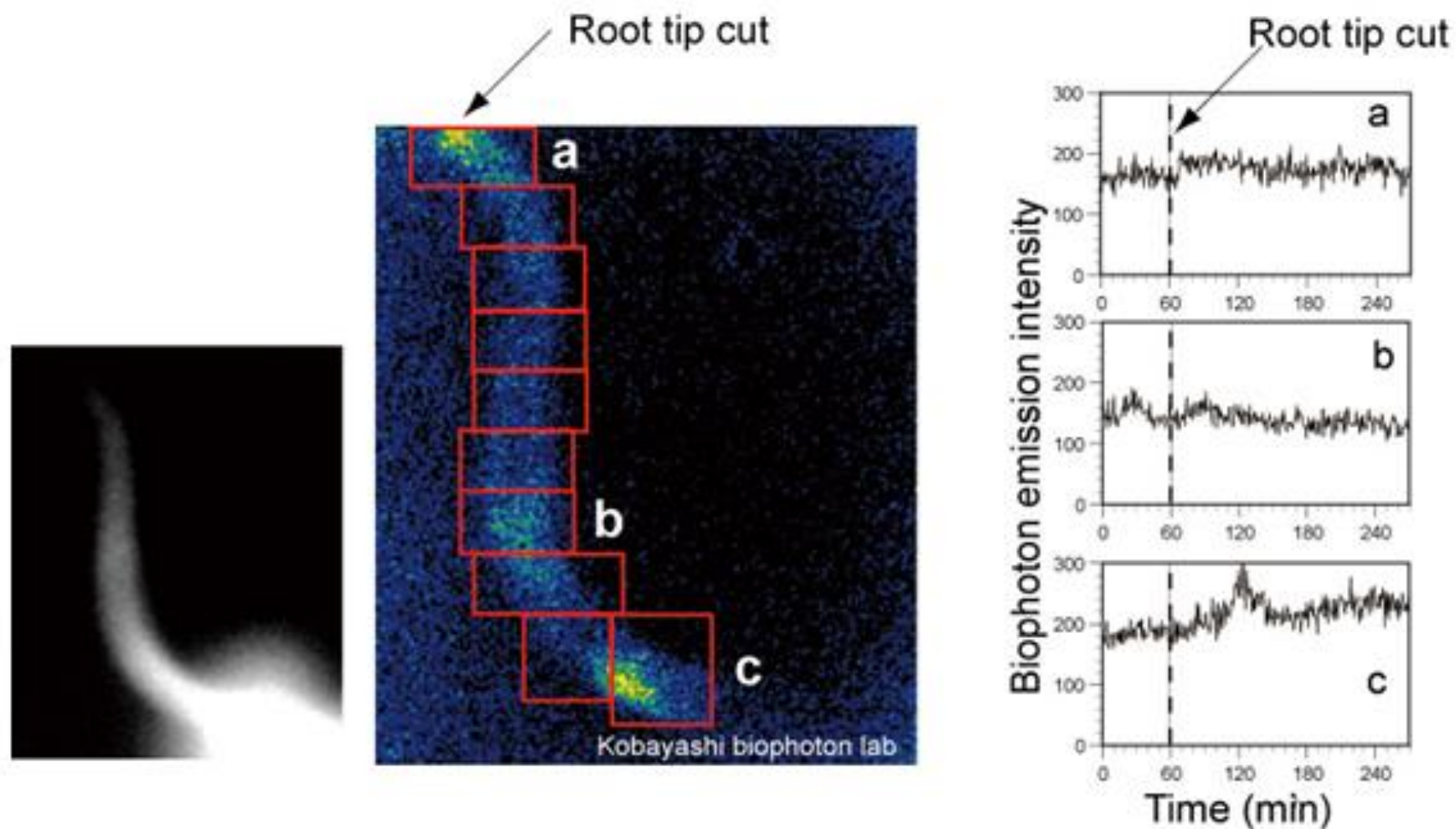


Biophoton image of a wounded soybean



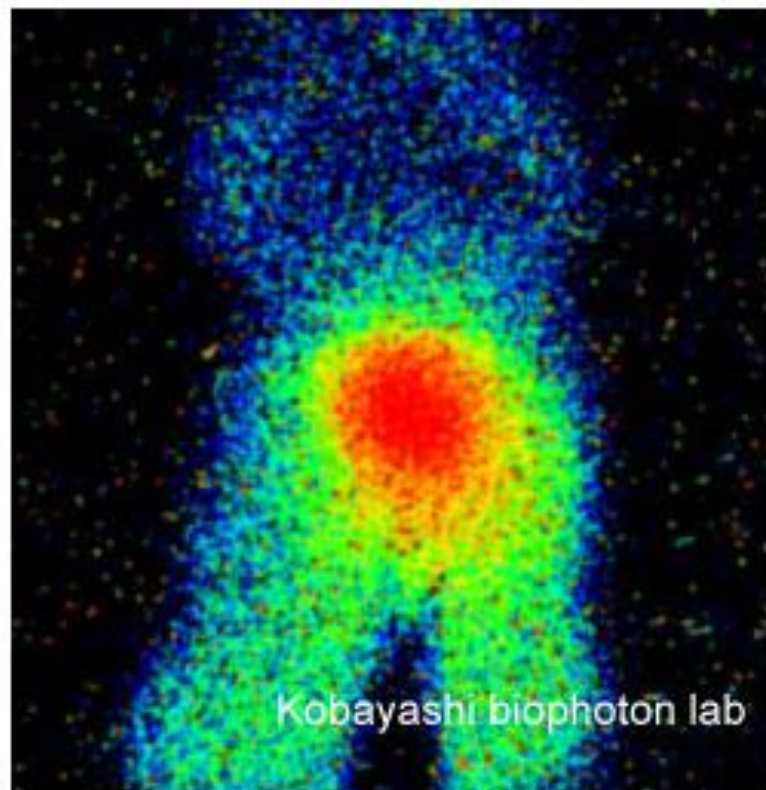
**Cotyledon was mechanically injured
as cross-shape by a knife.**

The wounded region on the cotyledon of a soybean emits higher rate of biophoton rather than normal region. It is suggested to result in the acceleration of lipid peroxidation reaction by endogeneous H_2O_2 -peroxidase system.



Biophoton image observed under the stimulation with root tip excision

Root tip excision induces a temporal augmentation of biophoton intensity at the distant position of the root tip (c). It is suspected to be the reflection of activation of cellular metabolism to repair the wounded tissue and to protect the living body.

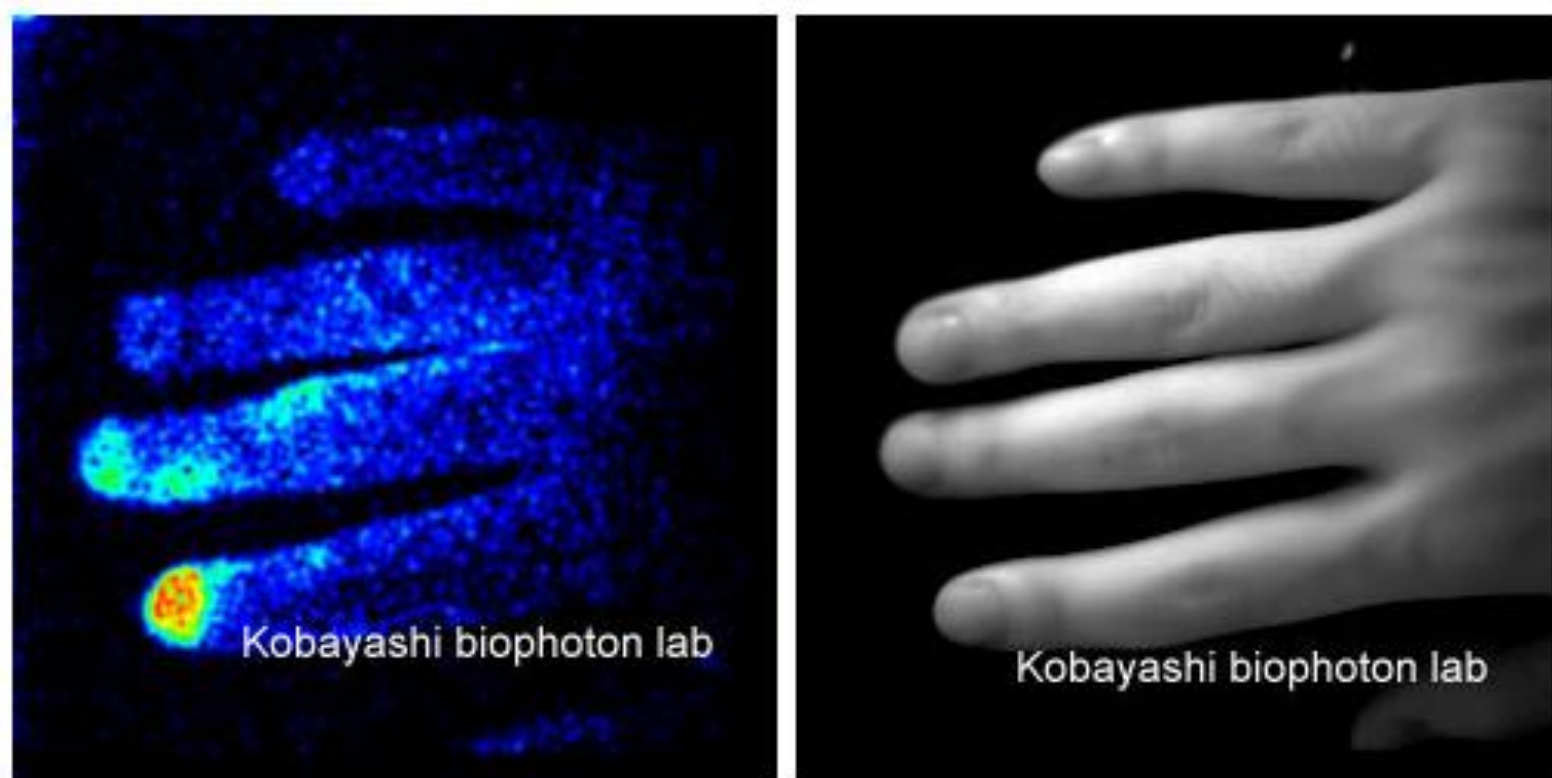


Biophoton image of a cancer transplanted mouse



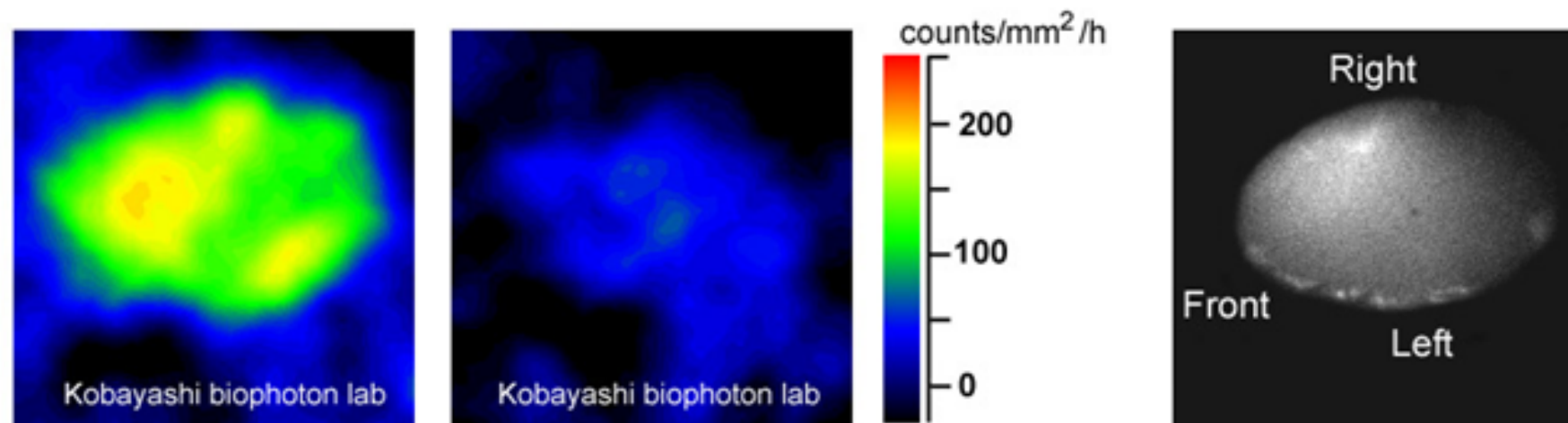
Picture of the mouse. Tumor is located on the back.

Cancer transplanted mouse shows the enhancement of biophoton emission along with the growth of tumor. The correlation between biophoton intensity and growth rate is observed, representing the higher metabolic activity of cancer cells and the state of oxidative stress in cancer cells.



Biophoton image of human fingers

Biophoton image of human subjects can be also detected. Photon emission on the finger tip of this subject would be due to the effect of cigarette smoking. Biophoton imaging on human bodies has potential to offer the method determining the oxidative damage of skin.



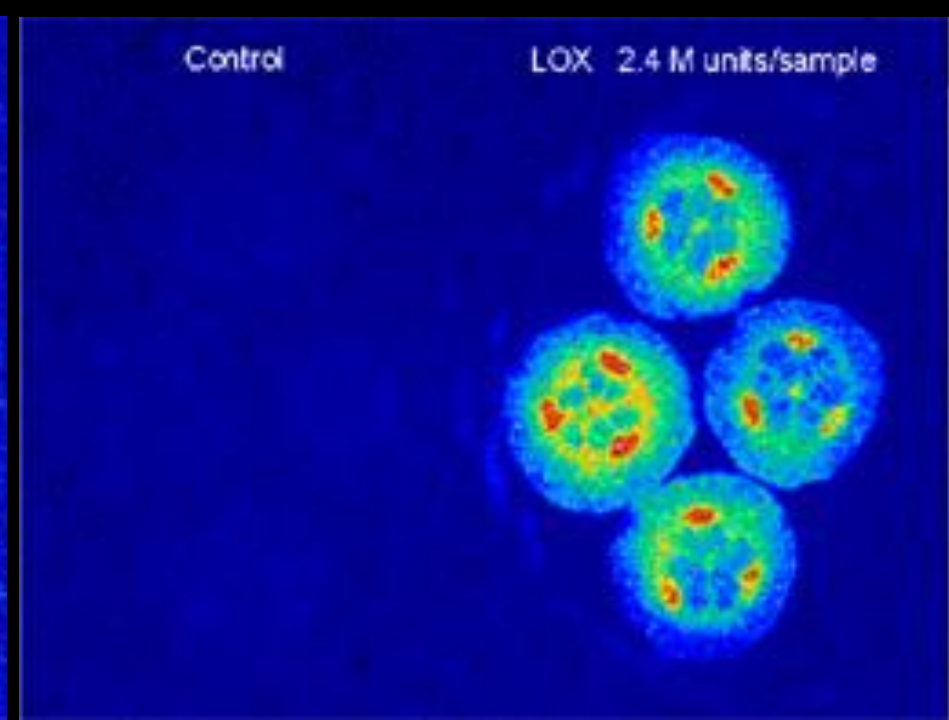
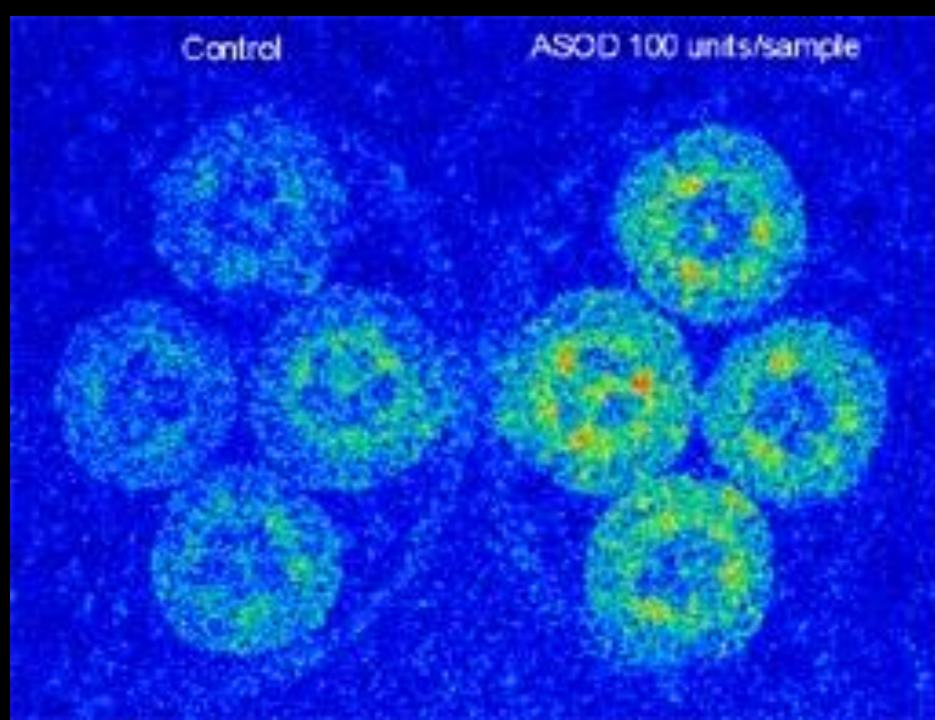
Biophoton images of rat's brain

(normal condition) (under the occlusion of blood flow into the brain)

Picture of the subject (after the skin incision, biophoton was observed through the skull)

Biophoton images of rat's brain can be observed through the skull. Biophoton intensity is suppressed with occlusion of common carotid arteries that supply blood flow to brain tissue. Biophoton intensity correlates with EEG activity, suggesting the dependence of biophoton with energy metabolism of nerve cells.

Oxidative stress induced under hyperoxia also leads to the increase of biophoton emission, indicating the relationship of biophoton with ROS production.



**A somatória total dos biofótons emitidos pelo corpo dá origem
ao que os sensitivos chamam de “aura”.**



ANTES



ENERGIZANDO



DEPOIS



ANTES



CHEIRANDO LIMÃO



DEPOIS



Fora de equilíbrio



Reequilíbrio com acupuntura



Após acupuntura



antes de uma massagem relaxante

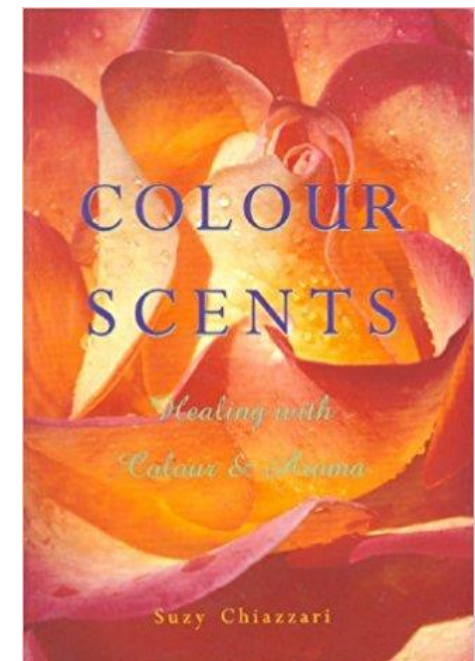
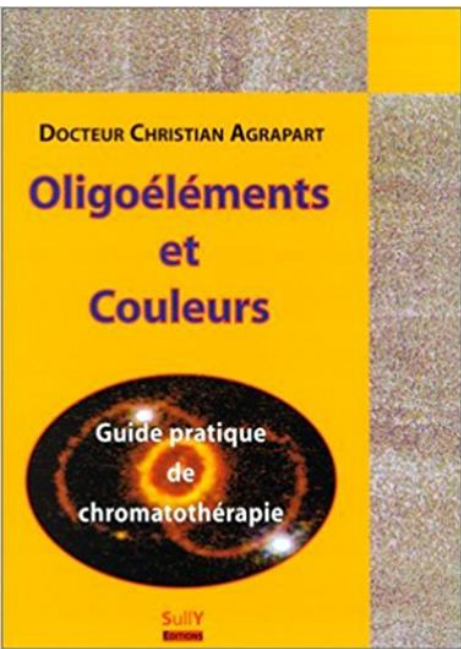


5 minutos após a massagem



45 minutos após a massagem

**Óleos essenciais
e atuação sinérgica
com a cromoterapia**



Óleos essenciais para ambientes azuis

Sensação: Frio, frescor e
relaxamento

Alecrim
Cânfora
Eucalipto
Hortelã
Niaouli
Louro



Óleos essenciais para ambientes verdes

Sensação: Natureza e bem-estar

Bergamota
Limão e lima
Tea tree
Manjeriçãõ verde
Sálvia escalréia
Petitgrain



Óleos essenciais para ambientes laranjas

Sensação: Alegria, jovialidade e
renovação

Laranja
Mandarina
Tangerina
Grapefruit
Capim limão
Lisea cubeba



Óleos essenciais para ambientes violetas

Sensação: Abstração, criatividade,
espiritualidade e tranquilidade

Lavanda
Lavandim
Junípero
Olíbano
Breu



Óleos essenciais para ambientes vermelhos

Sensação: calor, estímulo,
sensualidade

Canela

Cravo

Bay rum

Pimenta rosa

Pimenta da Jamaica

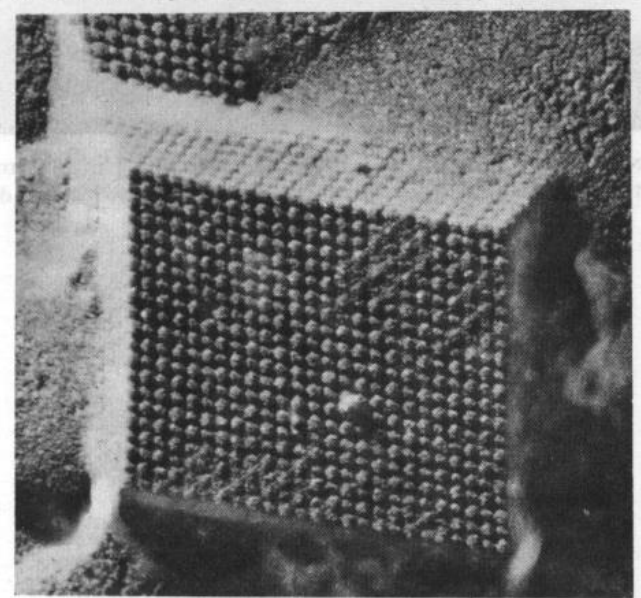
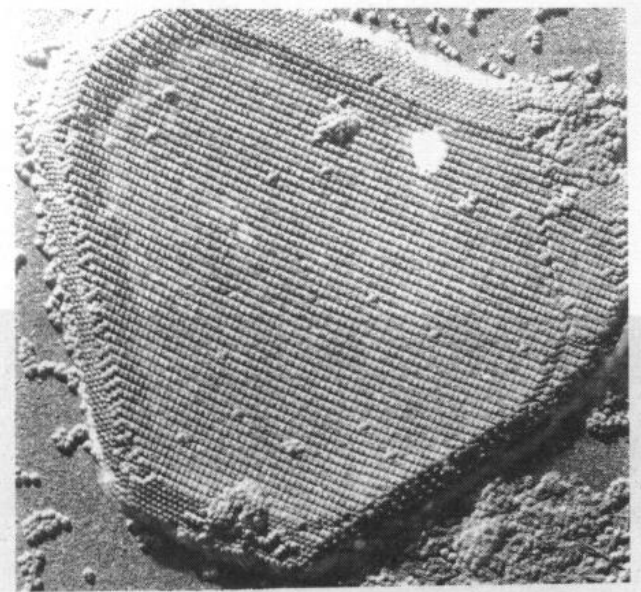
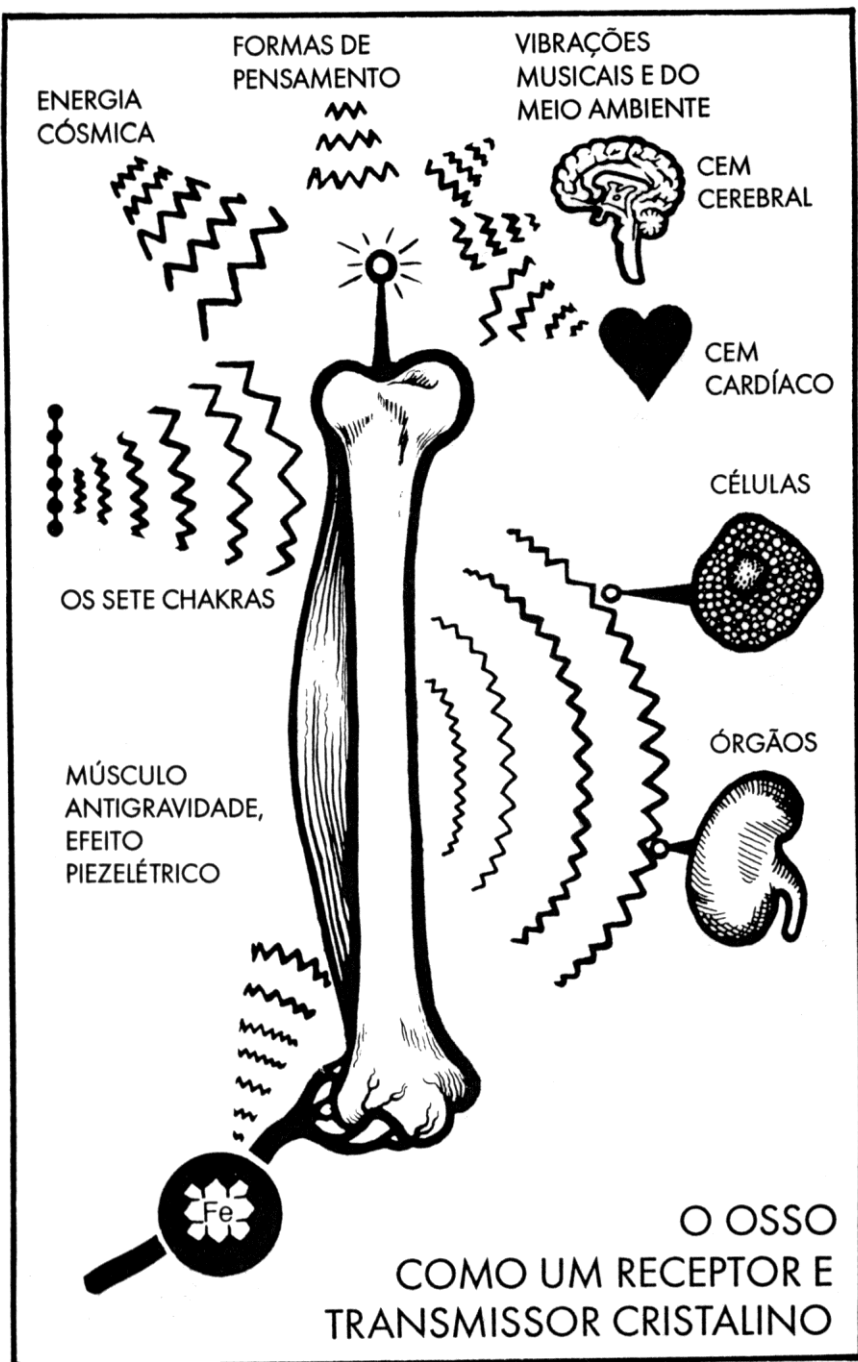
Rosa vermelha



**Óleos essenciais
para ambientes amadeirados
Sensação: Natureza, paz,
auto-estima, motivação**

**Cedros
Patchouli
Sândalo
Amyris
Copaíba
Cabreuva
Nootka tree**

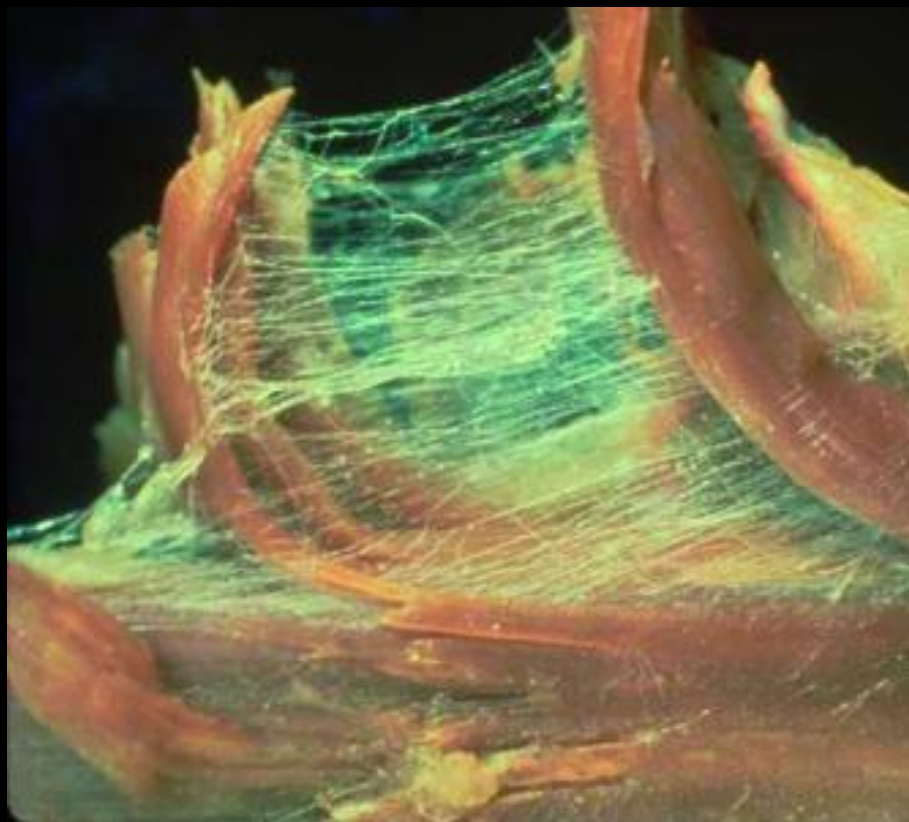




PRANCHA 2 — Duas fotografias de pequenos cristais, obtidas ao microscópio eletrônico. As moléculas individuais são claramente visíveis. Em cima: proteína do vírus de mosaico. Aumento: 30.000 X. Embaixo: proteína — vírus do tabaco. Aumento: 73.000 X. Fotografias de R. W. G. Wyckoff.

Cristais líquidos possuem propriedades pizoelétricas, ou seja, respondem a eletricidade produzindo campos eletromagnéticos e vice-versa.

A fáscia do corpo é rica em proteínas cristalinas de propriedades piezoelétricas

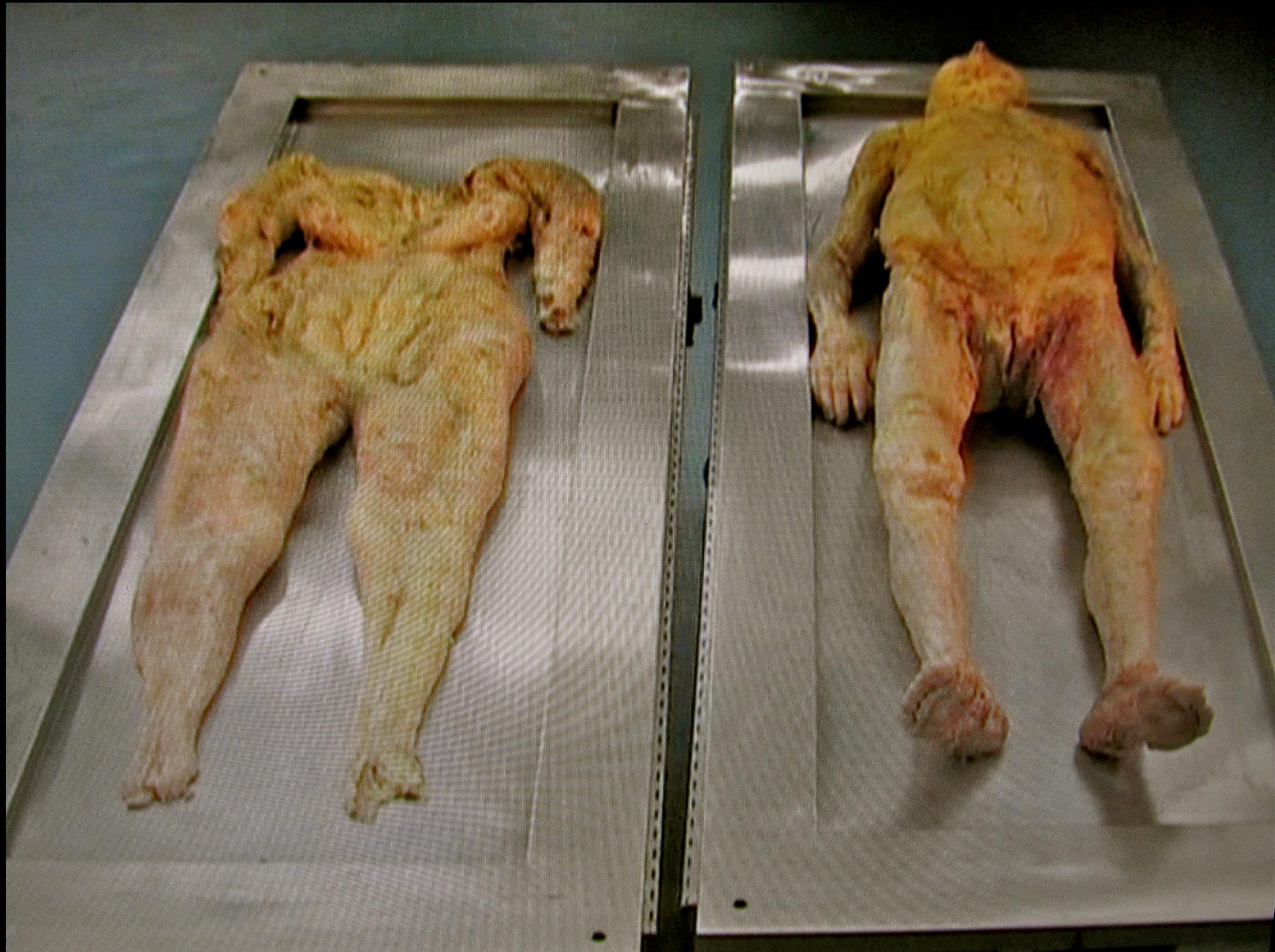


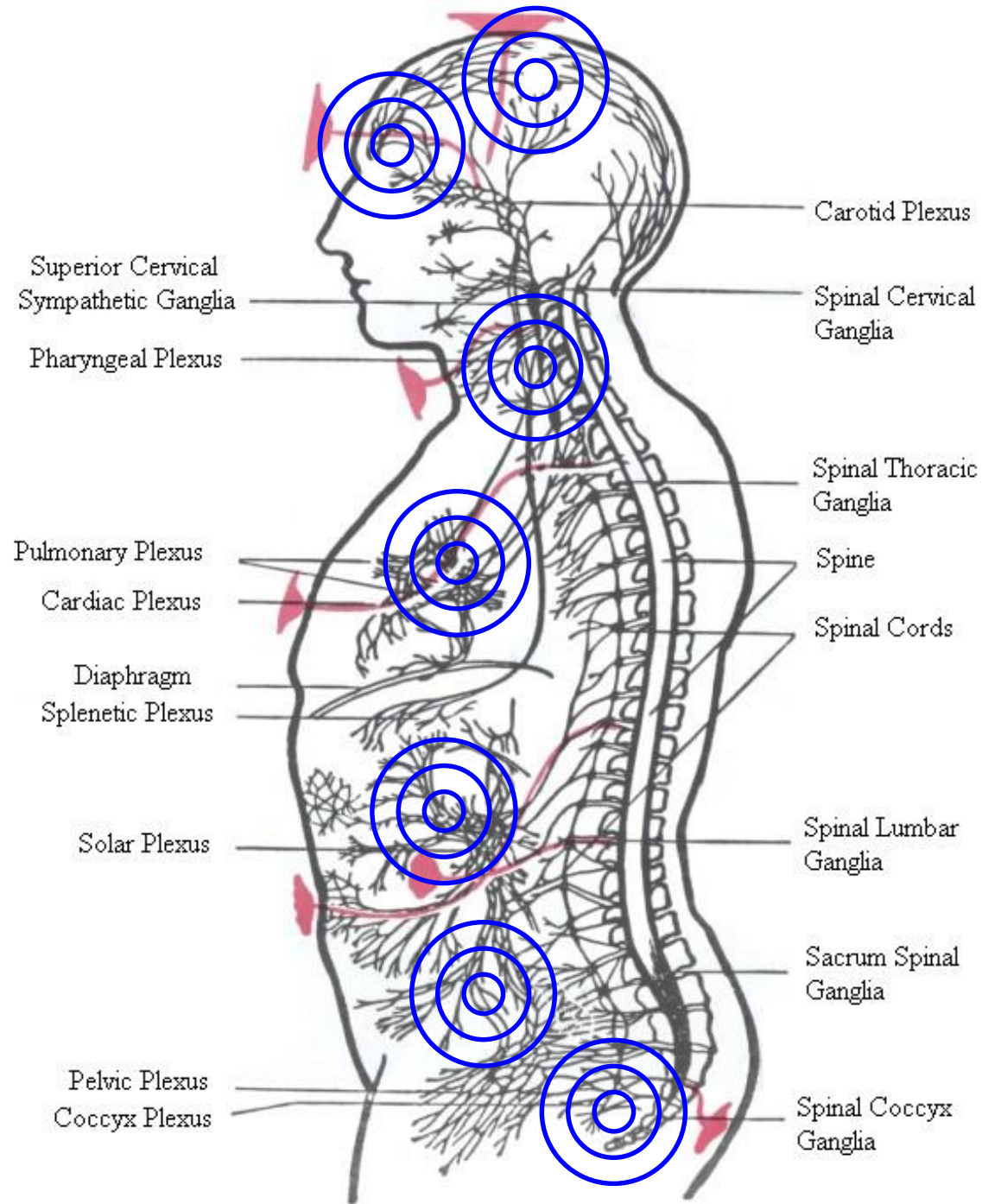


The superficial fascia is removed to show the pectoral fascia adhering to the pectoralis major muscle.



The superficial layer of the pectoral fascia passes over the sternum (S) and continues with the superficial layer of the contralateral pectoral fascia (PM), whereas the deep layer continues with the sternal periosteum. (X) Xyphoid process.





A constante corrente elétrica que circula pelos nervos ao longo da fáscia, estimula reações piezoelétricas de suas proteínas cristalinas. Isso é mais intenso na região dos plexos nervosos com a formação de fortes campos eletromagnéticos, chamados de **CHACRAS** na filosofia indiana.

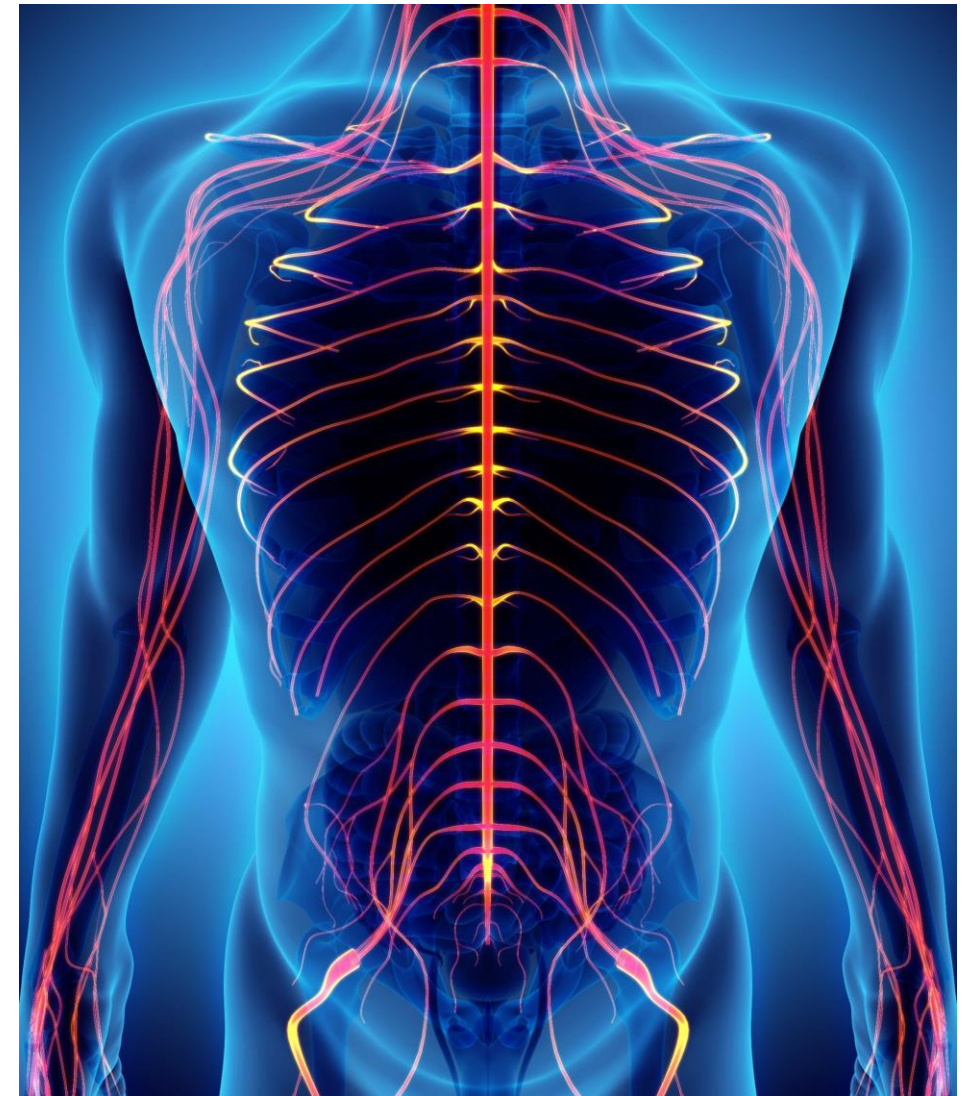


Fig. 4.

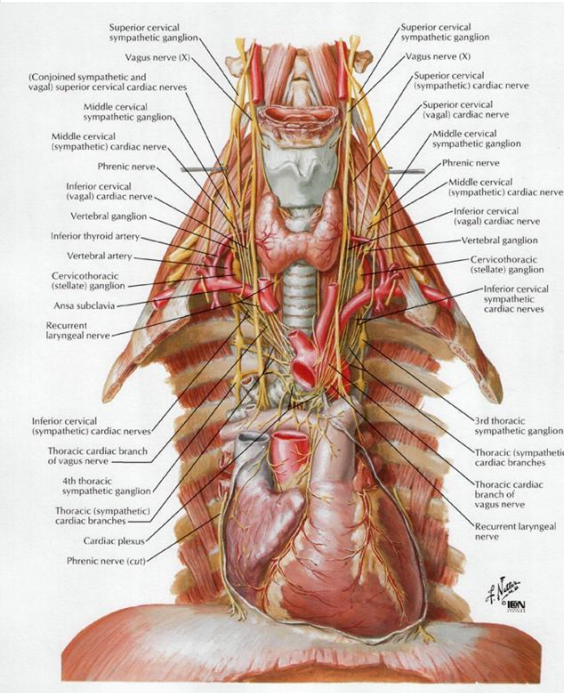
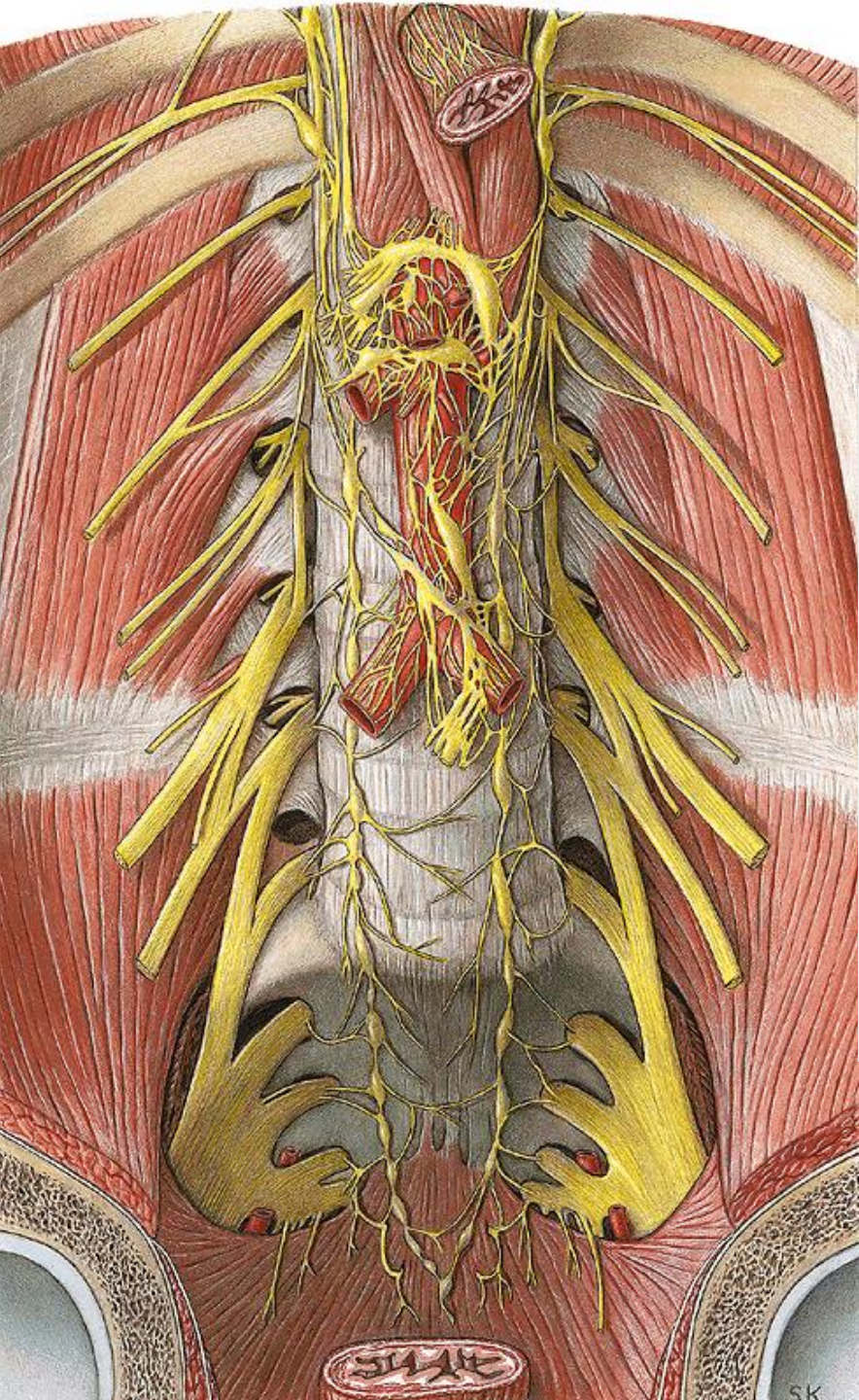
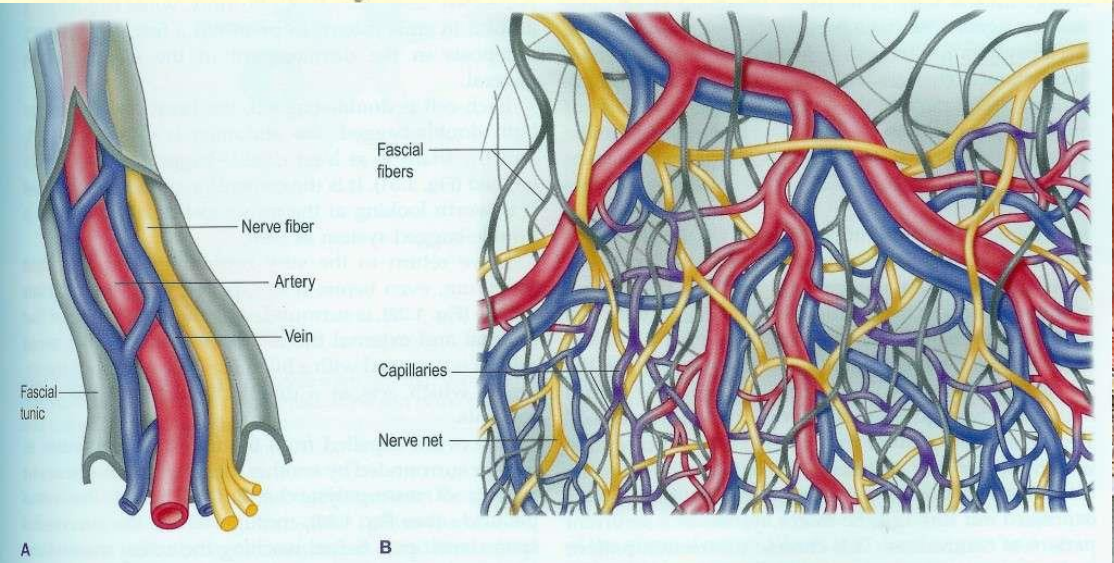
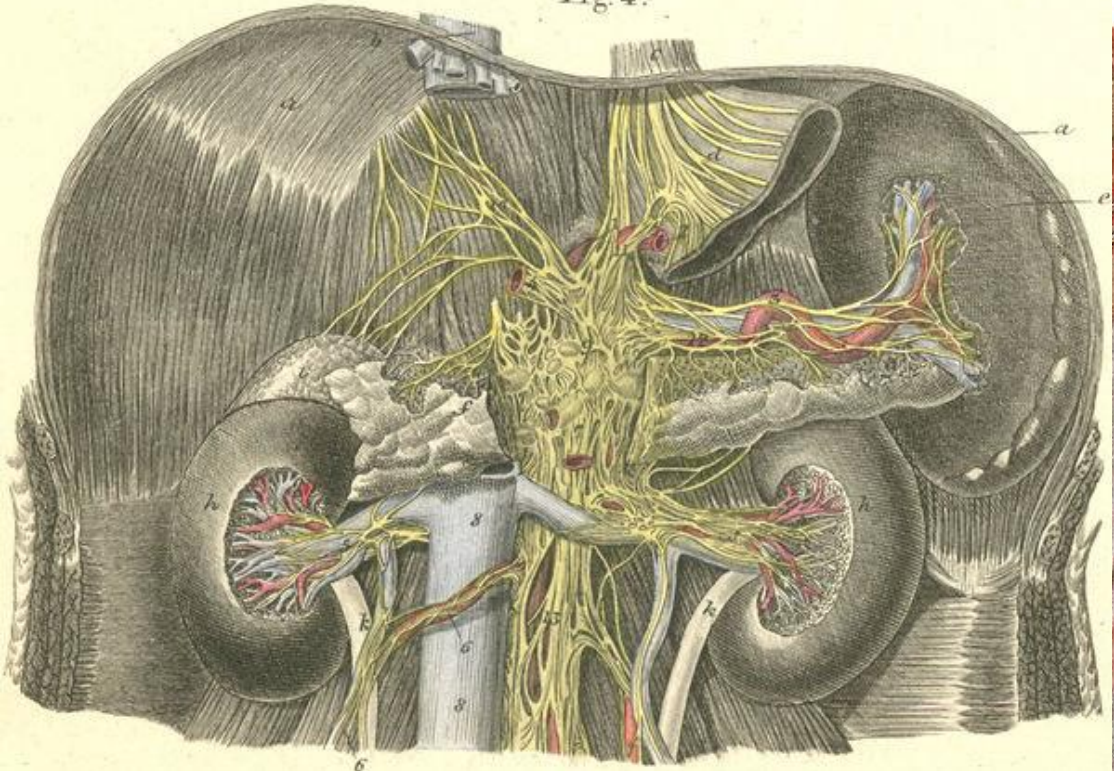


Fig. 1.29 The neural, vascular, and fascial systems run parallel in the neurovascular bundles (**A**) that extend the viscera out into the limbs and farther recesses of the body, with the connective and neural tissues forging the way. When they reach their destination, however, they spread into three enmeshed networks all occupying the same space (**B**).

Devido à sua alta frequência energética e por influenciar profundamente o emocional os óleos essenciais potencializam todo e qualquer tipo de tratamento energético com imposição de mãos.



Estudo final: O que sentimos em nosso coração afeta nossa capacidade de cura do próximo

LOCAL AND NON-LOCAL EFFECTS OF COHERENT HEART FREQUENCIES ON CONFORMATIONAL CHANGES OF DNA

Glen Rein, Ph.D. and Rollin McCraty, Ph.D.

INTRODUCTION

Recent studies have demonstrated the presence of quantum coherence in biological systems (1) and one of us (GR) has demonstrated that quantum fields can influence neurological (2) and immunological functions (3) at the cellular level. These studies support the existence of an endogenous electromagnetic field within the body which is coherent in nature. This hypothesis is also supported by two recent findings from the Institute of HeartMath (4). These studies demonstrated a) coherence in the ECG frequency spectra of individuals focusing on generating deep feelings of love, care or appreciation and b) a correlation between the ECG coherent patterns and electrical activity in the brain (5,6). These results support the idea that the heart acts as a master electrical oscillator radiating coherent frequencies throughout the body which promote health and vitality (7,8). Although the heart is known to emit an electromagnetic field, we believe that the energetic exchange of information between the heart and the rest of the body is mediated by a non-Hertzian quantum field which we refer to as heart energy.

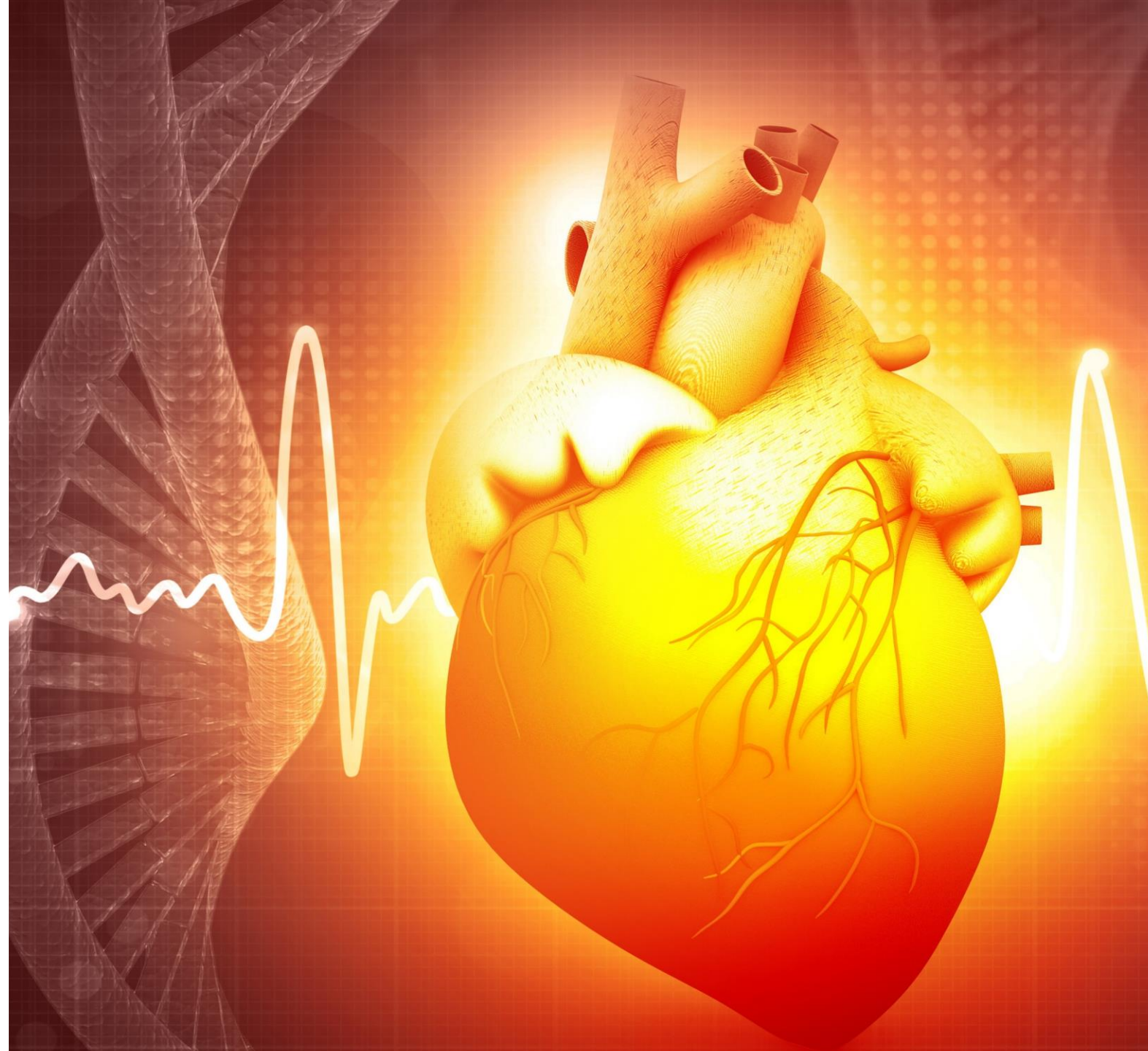
The theory also proposes that physiological benefits of coherent heart frequencies are mediated through DNA. The theory is supported by Popp's demonstration that DNA emits quantum coherent photons (9) and that DNA spontaneously oscillates coherently (10). We have presented some preliminary evidence (11) which demonstrated that the conformation of DNA can be altered by individuals producing coherence in the ECG frequency spectra.

MATERIALS AND METHODS

A continuous state of deeply focused love was generated by Doc Lew Childre and by ten other members of the Institute of HeartMath capable of mental and emotional self-management. In addition several gifted healers and five university student volunteers were also asked to focus on feeling love. ECG measurements were taken and analyzed by fast fourier transform (FFT) techniques. The coherence ratio was determined by the percent of coherent to noncoherent epics during the entire two minutes of recording (4). DNA samples were given to all individuals approximately one minute after physiological recordings had begun. The subjects held a beaker with a test tube containing DNA inside for the next two minutes during which time ECG recordings were continued. Long distance studies were conducted at 0.5 miles away from the test area. Controls consisted of periods where no energy was sent. In addition, active broadcasting periods (1 minute) were unknown to the experimenter. For the remaining experiments control samples of DNA were left on the laboratory bench for varying amounts of time when no energy was being sent. In this case UV spectral curves were superimposable.

The DNA samples consisted of identical aliquots (labeled in a double blind fashion) of human placental DNA suspended in deionized water. At the beginning of certain experiments, DNA samples were heated (80° C for 2 minutes) to partially denature (unwind) the DNA. All samples were stored at 4° C in a separate building before and after each experimental run. For each sample, the conformation of DNA was measured before and after exposure to the subject's intention using a Hewlett Packard UV absorption spectrophotometer.

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