Report 2024

Society for Cancer Research
Arlesheim • Switzerland

Society for Cancer Research
Hiscia Research Institute

Society for Cancer Research
The primary aims of the Society for Cancer Research are assuring, optimizing and developing holistic cancer therapies on the foundations of anthroposophic medicine and pharmacy.

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Editorial

Dear readers,

With this report, the Society for Cancer Research provides an insight into selected research activities which – for one reason or another – particularly stood out during the year 2024. Traditionally, our focus has been on researching the potential of mistletoe in cancer treatment, although over the last years other plants have also moved into the spotlight. We hope you enjoy discovering our diverse research landscape.

A larch resin-based wound spray that promotes the healing of large chronic wounds was developed from a dissertation carried out by the Society for Cancer Research in collaboration with the University of Basel. Poorly healing wounds can occur in cancer and other diseases and are very distressing for patients. An interview on the development and initial experiences with the practical application of the new spray can be found on page 4.

In recent years, mistletoe has spread widely, particularly in apple orchards. Nature conservation organisations and fruit growers consider this development a threat for apple trees. The Society for Cancer Research has helped explaining the reasons for this spreading in a scientifically sound manner and has shown ways of curbing excessive mistletoe growth. At the same time, the biology of mistletoe was explained in order to promote a positive image of mistletoe among the public (p. 9).

Many anthroposophic medicines are potentised and require new scientific concepts in order to explain their mode of action. The development of methods for measuring the effect of potentised medicines in the laboratory are therefore of central importance. A blood test developed by our team has now shown for the first time that potentised medicines can measurably induce changes in patients' blood samples. You will find our laboratory report on page 15.

Mistletoe contains a large number of pharmacologically significant substances. The mistletoe preparations currently available on the market are administered as aqueous injections containing only the water-soluble substances as their ac-

tive ingredients. However, the non-water-soluble, i.e. fat-soluble, components of mistletoe also contain important anti-carcinogenic components, e.g. triterpenes. Therefore, the Society for Cancer Research has been working for some time on making these fat-soluble substances available in injection form. Read about the current state of research on page 19.

Every year, the Society for Cancer Research organises the Arlesheim mistletoe and cancer study days (Arlesheimer Studientage Mistel und Krebs), formerly known as the Arlesheimer Krebstagung (Arlesheim cancer conference) which has been held in cooperation with other anthroposophical institutions since 2020. The well-attended conference in October 2024 was dedicated to the topic of warmth efficacy and mistletoe therapy. You can find the conference report on page 22.

The last article in this issue (p. 25) is a book review. In their publication, the authors describe in detail the method and scientific background of image-forming copper chloride crystallisation, which is also used in several research projects at the Society for Cancer Research and is also being further developed methodically. The English-language publication primarily addresses an expert audience and resembles a key milestone in the scientific foundation and description of the method.

Also, in 2024, researchers from the Society for Cancer Research again published many academic works. You find the overview on page 27.

The staff of the Society for Cancer Research continues to dedicate themselves holeheartedly to the research on mistletoe therapy and the development of new nature-based treatments for cancer patients. We are very grateful if you support our efforts with a donation.

Professor Stephan Baumgartner

Head of Research and Development
Society for Cancer Research

Interview on the Development of the New and Innovative Larix Oleoresin Wound Spray

As part of his dissertation at the University of Basel, Dr João V. da Costa Batista from the Department of Pharmaceutical Development with the Society for Cancer Research (VfK) developed an innovative wound spray[1]. Since the summer of 2024, this spray has been undergoing clinical trials under the direction of Professor Jose Carlos Tavares[2] at the University Hospital in Macapá (Northern Brazil). We inquired about the development of this new drug and how it performs in practice.

Dr Batista, how did you come up with the idea of developing a wound healing emulsion based on larch resin for your doctoral thesis?

I wanted to develop something innovative, a formulation that would solve a specific problem. Although the 4-component ointment[3] developed by the VfK showed good results in treating open oncological wounds, the small 5g tubes were often not sufficient for the treatment of this kind of chronic wounds which can be extensive and very deep. As a result, doctors inquired whether the active ingredient could also be offered in the form of a spray. This gave rise to the idea of developing an emulsion from larch resin that could be sprayed onto large, open wounds. Larix oleoresin (larch resin) contains particularly promising ingredients for wound healing[4, 5] such as resin acids and essential oils, and has traditionally been used as an antiseptic and wound-healing agent.

What are the advantages of a spray compared to an ointment?

A spray can be applied more easily and evenly, and it is more hygienic because it minimises direct contact with the wound when spraying. The droplets of the emulsion are in the nanometer range in terms of size, allowing them to penetrate deeper into the skin, whereas the active ingredient of the ointment remains on the skin's surface. In addition to providing external protection, the deeper absorption of the substance also achieves an effect from the inside out.

What were the challenges?

It was challenging to find the right composition of the formulation and to develop an emulsion that efficiently incorporates all active ingredients while remaining stable for at least 6 months. According to our tests, the current formulation remains stable for 16 months. In addition, a method had to be found to meet the

Professor Tavares and Dr J. Batista on the shores of the Amazon

Larches in the Tyrolean mountains

Larch needles in autumn

Dr J. Batista preparing the filtration of the formulation

Production of the larch resin emulsion

Wound spray with 10 % larch resin content

legal requirements for the sterility of the emulsion for use on open wounds, without altering the formulation.

What makes the new larch resin emulsion so innovative?

Apart from the fact that no emulsion made from larch resin has ever been available on the market before, the innovation mainly lies in the fact that we can now offer an easier-to-use medical product in the form of a liquid spray emulsion for treating large chronic wounds. Since the droplets of the emulsion are very small, they penetrate deeper, enhancing the antiseptic and healing properties of the larch resin formulation. It is a promising and natural medical product. We hope that open chronic wounds can be closed with the new larch resin spray. Initial patient cases have shown that it works.

Professor Tavares, why did you decide to use the larch oleoresin spray in your clinic in Macapà?

Larch oleoresin has an interesting phytochemical composition with anti-inflammatory and antimicrobial properties, and there are many reports of its widely successful use as a medical drug. I therefore proposed to use the new wound spray clinically for the first time in five diabetic patients with complex contaminated ulcers as part of individual case studies.

What results were observed?

The results are encouraging regarding the reduction of bacterial load and the anti-inflammatory effect, which is also linked to the process of stimulating local blood circulation. We were able to document cases in which chronically open wounds closed after just a few weeks of treatment.

What is the significance of this new drug for people with chronic wounds?

There is a lack of effective products for treating complex wounds with bacterial and fungal contamination. The new larch resin spray could lead to significant progress in this regard. Patients with chronic open wounds often suffer from severe pain and – due to the foul odour of such wounds – social exclusion. If these wounds can be closed, the relief is immense. The patients can lead a more self-determined and dignified life again.

The Brazilian government is now funding a large clinical study. Can you briefly explain what it is about?

In April 2025, we will start a randomised clinical study at the University Hospital in Macapá with over 500 patients suffering from complex wounds with poor healing progress. The study will be controlled with a commercially available standard product and a placebo, and it will examine the effectiveness and topical safety of the new larch resin spray.

Dr Batista, what happens next?

We are in the process of compiling the patient cases in Brazil and writing a case study report, which is scheduled to be published in 2025. Additionally, our larch resin wound spray is now entering clinical use in Switzerland. We plan to provide the necessary evidence step by step and meet the requirements so that we can apply for approval from Swissmedic and hopefully bring our larch resin wound spray to the patients soon.

Dr Batista and Professor Tavares, thank you very much for this insightful conversation! ■

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Mistletoe in the Field of Tension of Public Perception

Through its participation in official committee work and the implementation of research projects on mistletoe cultivation, the Society for Cancer Research (VfK) contributes to a stronger and, above all, more positive perception of mistletoe in the public eye.

For some time now, mistletoe has been attracting public attention, particularly due to its widespread presence being reported on in the media across Europe with special focus on its significant spread in traditional apple orchards. Dense mistletoe growth weakens especially older apple trees, which is the reason nature conservation organisations view the expansion of mistletoe as a «potentially existential threat» to orchard landscapes. As a result, conservation goals, such as the preservation of species-rich habitats, could be endangered.

In 2022, the Ministry of Rural Areas and Consumer Protection in Baden-Württemberg, Germany initiated a project aimed at the «Sustainable Control of Mistletoe Infestation in Traditional Orchards.» Due to its expertise in mistletoe cultivation, the VfK participated in an advisory capacity, supported the development of an appropriate strategy and contributed significantly to public education with scientific information on the biology of mistletoe.

Mistletoe sowing in the orchard

The project systematically investigated the factors influencing the spread of mistletoe in order to formulate measures for regulating its spread in traditional orchard landscapes. For instance, data on the presence and activity of mistletoe-dispersing bird species were collected. In December 2024, the results were offered in an online presentation, with the final report to be published on the website of the German Networking Agency for Rural Areas (Deutsche Vernetzungsstelle Ländliche Räume)[1].

The continuous decline in regular maintenance of the traditional orchards was identified as the main trigger for the strong spread of mistletoe. The increasing food supply in mistletoe berries attracts mistletoe-dispersing birds, such as the mistle thrush and the Eurasian blackcap, which are increasingly using mistletoe-rich sites as wintering grounds during the increasingly mild winters. Thus, climate change indirectly promotes mistletoe infestation by expanding the habitat of mistletoe-dispersing birds[2]. Furthermore, prolonged dry periods during the growth-intensive spring months lead to a disturbance of water supply to the apple trees, negatively affecting their health.

Positive reinforcement of the above-mentioned factors leads to an exponential mistletoe spread within just a few years particularly affecting apple tree monocultures. A healthy variety of tree species is therefore recommended, as pear and cherry trees for instance are less susceptible or even resistant to mistletoe. Mixed stands with fewer mistletoe berries are less attractive to mistletoe-dispersing bird species compared to exclusive apple tree stands with abundant mistletoe growth.

The main measure proposed by the VfK to contain the uncontrolled spread of mistletoe, e.g. the timely and complete re-

The blackcap brushes the mistletoe seed, which is surrounded by the sticky inner flesh, against the bark

A seven-year-old mistletoe bush, rich with berries, on an apple tree

moval of berry-bearing female mistletoe bushes, met with a particularly positive resonance. This approach can help prevent the spread early on and reduce the attractiveness of traditional orchards for mistletoe-dispersing birds.

In another project in the Swiss canton of Thurgau, the Botanical Department of the VfK pursues entirely different objectives. At the end of 2017, an orchard owner there made his biodynamically cultivated apple trees available for controlled mistletoe cultivation to support the production of mistletoe preparations for cancer treatment[3]. This site aims to demonstrate that commercial fruit growing and mistletoe cultivation do not need to be in conflict, provided that the mistletoe growing on the apple trees does not endanger any neighbouring orchards. To ensure this, all mistletoe berries are harvested by mid-November each year so that mistletoe-dispersing birds are not attracted in the first place.

By November 2024, just seven years after the first sowing of mistletoe, large quantities of mistletoe berries were harvested for pharmaceutical processing into mistletoe preparations for cancer therapy. Detailed records allow estimates for how many trees need to be planted and how many mistletoe seeds need to be sown on the trees to meet a specified pharmaceutical demand. Thus, the VfK is breaking new ground and demonstrates new ways in which mistletoe can be cultivated for positive purposes without endangering traditional orchards. ■

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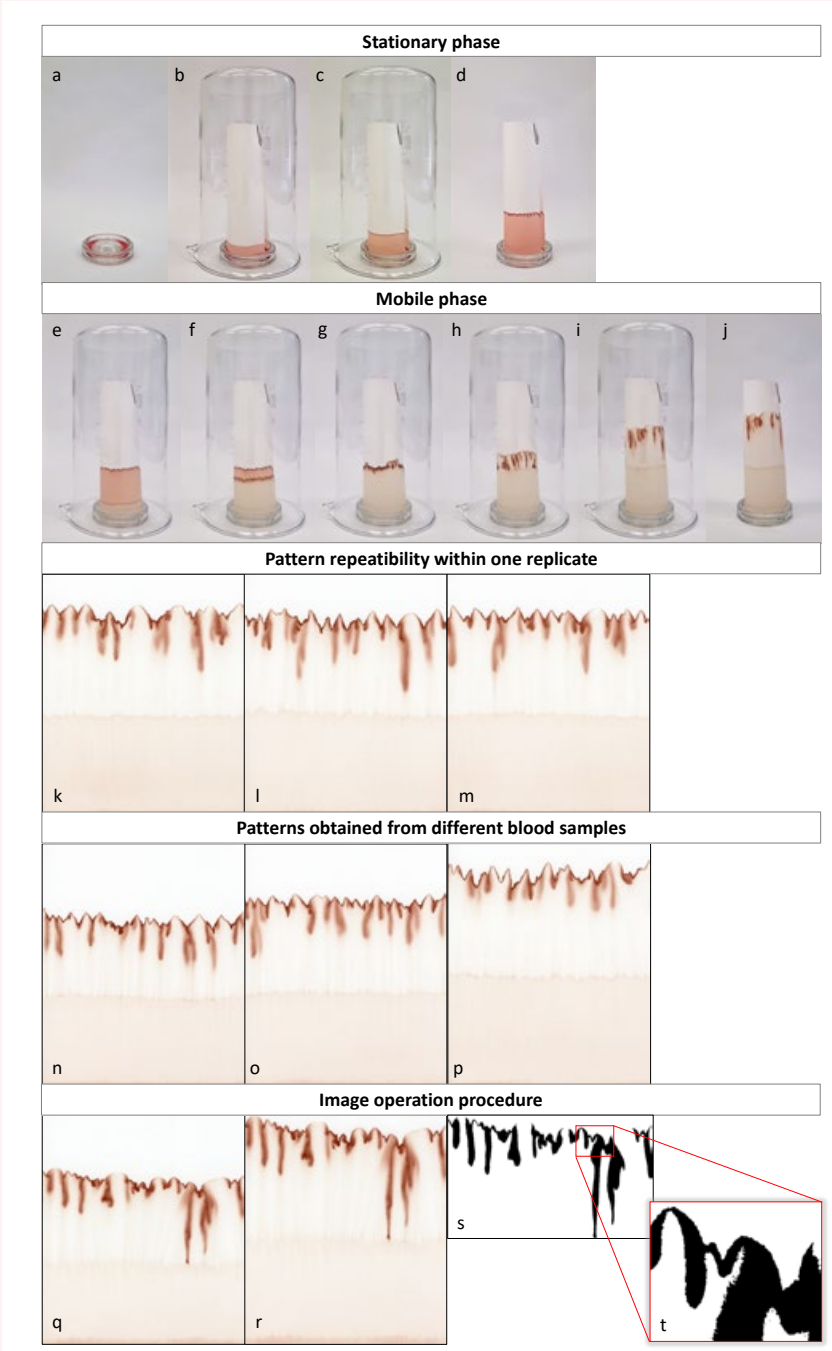
The Individually Right Medicine for Each Person

The Society for Cancer Research (VfK) is developing a new laboratory procedure for predicting the effects of potentised medicines in humans. For this purpose, the effects of the intangible forces of potentised medicines are to be made measurable using blood samples for the first time.

«Primum non nocere» («First, do no harm») is a principle of the Hippocratic Oath that therapists must pay particular attention to when choosing medicines. They must ensure that their prescription improves the individual's situation instead of worsening it. Therefore, methods to verify the suitability of a particular medicine are of great importance. Laboratory procedures, such as genetic testing, can show how certain medicines will work. The VfK is now developing such a laboratory procedure specifically for potentised medicines. The first promising results are expected to be published soon.

The development of a laboratory procedure for predicting the effects of potentised medical preparations posed significant challenges for the VfK researchers. Potentised medicines, at certain potency levels, contain no chemically detectable molecules. Their effectiveness therefore relies on forces that Rudolf Steiner referred to as etheric forces. In nature as well as in humans, etheric forces are an intermediary between spirit and matter: forces transmitting spiritual content into matter. The choice of a suitable potentised remedy is therefore equivalent to finding the etheric force that transmits the necessary spiritual content from nature to the person. Upon ingestion, the etheric force of the medicine acts on the person, so this effect must be measured through a laboratory procedure.

The first step in developing the procedure was to investigate whether potentised medicines could measurably alter the blood samples used for laboratory investigations. For this purpose, the test developed by Dr Werner Kaelin, one of the co-founders of VfK, was optimised. The original principle of the Kaelin test relies on the fact that blood samples form a specific pattern on filter paper allowing insights into human etheric forces. Similar methods were previously presented in the 2019/20 and 2021 Reports [1, 2]. The Kaelin test has now been expanded to include the addition of a potentised medicine to the blood sample, with the resulting pattern being analysed using computer techniques.



Graphical representation of the experimental procedures performed during the Kaelin blood test, from pattern formation on filter paper (a – j) to pattern analysis, with replicas of the same blood sample (k – m), patterns from different blood samples (n – p), and computer analysis (q – t)

To detect the effect of potentised medicines, a blood sample was taken from each patient. This blood sample was divided in four parts. To three parts, a potentised medicine was added, to the fourth part a placebo. After pattern formation on the filter paper, pictures of the samples were measured using the computerised method. The samples were blinded so that until the end of the analysis it remained unknown whether the sample contained the drug or the placebo.

Thirteen patients provided their blood samples before beginning their treatment. The researchers were particularly surprised that for the first time, it was shown in six individuals that the potentised medicines had altered the blood patterns on the filter paper in a statistically significant manner. The change was particularly noteworthy in blood samples from people with acute, as opposed to chronic, conditions. Secondly, each potentised medicine had different effects on the thirteen patients' blood samples. If the results can be replicated, this would be the first laboratory-analytical proof of potentised medicines showing an individual effect in humans. With the help of technology-supported analysis, the Kaelin test could assist doctors in selecting the optimal medicine for their patients in the future.

The project is in its early stages, and therefore the results must be interpreted with caution. However, for the first time it has been possible to measurably induce changes in blood samples using potentised medicines. As a result, the researchers at VfK will repeat the experiment with more participants. Additionally, they will document symptom development after drug intake to determine whether there is a correlation between the changes in the blood sample pattern and the observed clinical effect. ■

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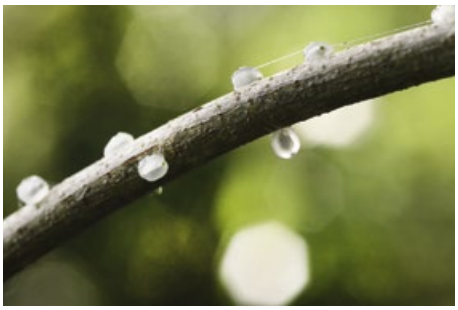
The Multitude of Mistletoe Substances in the Service of Cancer Treatment

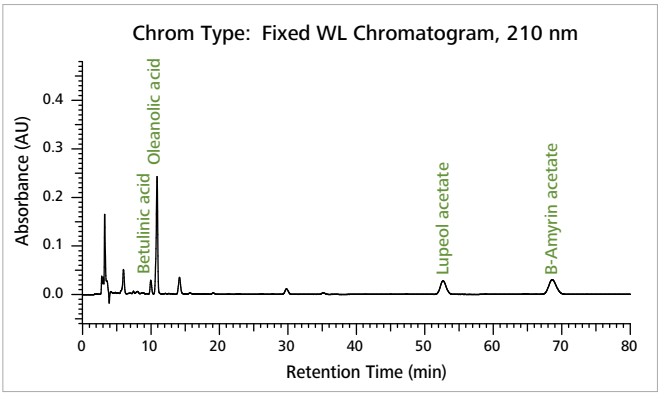
Mistletoe consists of a variety of substances causing its broad, still untapped therapeutic potential. In the search for new approaches to cancer treatment, the Society for Cancer Research (VfK) is developing a new injectable medicine from the fat-soluble components of mistletoe.

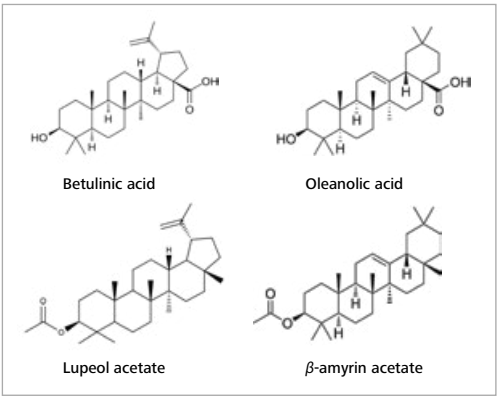
The more diverse an herbal medicine is in its composition, the greater its therapeutic potential. This rule also applies to cancer, where the numerous substance classes in mistletoe extracts can stimulate various levels within the organism, positively influencing a variety of physical functions. Therefore, increasing the number of substances available in mistletoe preparations has been a goal of the VfK.

In his numerous writings on mistletoe therapy, Rudolf Steiner recommended the use of both the water-soluble and the fat-soluble components of mistletoe for cancer treatment. He also advised that these components be transferred into an injectable form. This would allow the mistletoe substances to interact with the immune system. The implementation of these guidelines into practice has been a central endeavour of the VfK for decades. While the water-soluble components were already transferred into an injectable solution over 100 years ago, the fat-soluble components posed particular challenges for researchers.



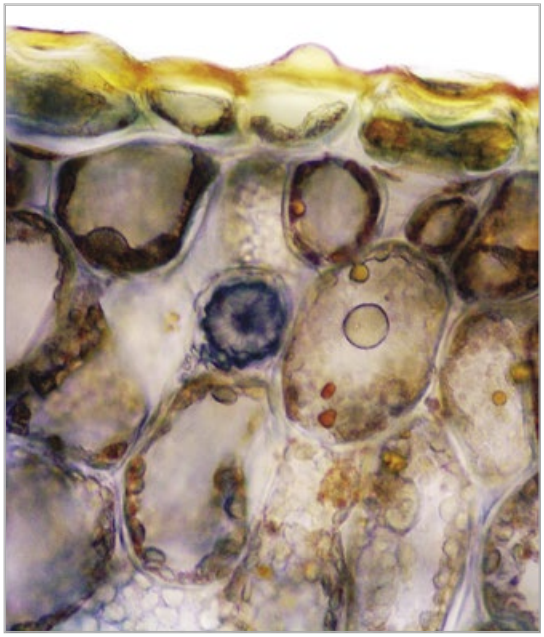
When the mistletoe seed is attached to the tree bark by the birds in winter, the «glue droplets» in the pulp fuse and form a thin, transparent layer around the mistletoe seed. This layer of glue enables the mistletoe seed to adhere to the bark of the host tree. As a result, the mistletoe resin helps the mistletoe to survive and spread.





Mistletoe resin contains important triterpenes, including oleanolic acid, β-amyrin acetate, lupeol acetate, and betulinic acid. From the scientific literature, it is known that such triterpenes have interesting pharmacological properties: they exhibit antitumour, liver-protective, pain-relieving, anti-inflammatory, wound-healing, immunomodulatory, and antioxidant effects.

The mistletoe plant contains small «glue droplets» (mistletoe resin), both in the pulp and epidermis of the mistletoe berry and in the green parts of the mistletoe plant (leaves and stems).



As a first step, the VfK succeeded in isolating the fat-soluble components from mistletoe, the mistletoe resin, using a gentle process without solving agents. The extraction method was described in detail in the Report 2014. The next challenge was to transfer the mistletoe resin into an injectable solution of pharmaceutical quality. Fat-soluble compounds behave in water like oil, floating on the surface. To prevent them from being repelled by the water, a «mediator» is required. After numerous experiments, the researchers at VfK succeeded in emulsifying the fat-soluble components of mistletoe in water with the correct mediator, formulation, and appropriate manufacturing conditions. This mistletoe resin emulsion now finally meets the quality requirements for a pharmaceutical product.

This newly developed injectable preparation containing the fat-soluble components of mistletoe opens new possibilities in cancer treatment. The preparation is intended to be administered in addition to conventional mistletoe preparations. The latter primarily consist of the water-soluble compounds of the mistletoe plant and contain active proteins such as mistletoe lectins and viscotoxins, which may strengthen the weakened immune system in cancer patients. With the new mistletoe resin emulsion, the fat-soluble ingredients would complement the effects of the water-soluble ones.

The mistletoe resin components constitute a variety of individual substances. The triterpenes are particularly abundant and have interesting pharmacological properties. Their chemical structure resembles that of steroid hormones like testosterone or estrogen. However, their physiological effects are different: triterpenes have anti-inflammatory, immune-stimulating and anticancerous effects in vitro and in animals, which is why they are of particular interest for cancer treatment. The VfK's project to combine fat-soluble triterpenes with the water-soluble mistletoe lectins has already shown initial success in laboratory experiments with various research groups: the effectiveness of mistletoe lectins against cancer cells was significantly increased by adding the triterpenes.

The next step for the VfK will be the development of processes enabling an increase in the production volume of the mistletoe resin emulsion. This will be the first step towards realizing clinical studies on the newly developed mistletoe preparation. Several anthroposophical hospitals have already expressed great interest. While there is still a long way to go before the mistletoe resin emulsion reaches patients, the VfK is optimistic that this major project will succeed in the years to come. ■

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Great Resonance to the Arlesheim Study Day Mistletoe and Cancer 2024 with the Main Topic «Warmth Efficacy and Mistletoe Therapy»

The Society for Cancer Research (VfK) annually organises the Arlesheim Study Day Mistletoe and Cancer (Arlesheimer Studientag Mistel und Krebs), which is reported on below.

Based on Rudolf Steiner's statement in his lecture on 27 October 1922 in Stuttgart (GA 314) that in order to dissolve it, a tumour must be enveloped by a «coat of warmth», this year's Study Day, held on the evening of 25 and on 26 October, focused on the topic of «Warmth Efficacy and Mistletoe Therapy». The Study Days continue the tradition of the Arlesheim Cancer Conference (Arlesheimer Krebstagung) organised by the VfK, established in 1949. They serve as a platform for both therapeutic exchange of experiences and the development of scientific and spiritual foundations of anthroposophic cancer therapy. Since 2020, the VfK has organised the Study Days for professionals in collaboration with the Klinik Arlesheim, the Medical Section at the Goetheanum, and the Swiss Association of Anthroposophically Oriented Physicians (Vereinigung Anthroposophisch Orientierter Ärzte in der Schweiz, VAOAS). The event takes place every year on the last weekend of October.

Various lectures explored the meaning of warmth both for understanding cancer development and its role in effective cancer therapy. After a tone-eurythmic introduction, the first evening was dedicated to «the meaning of warmth in the polar dynamics of organ formation and tumour therapy». Dr Wilburg Keller Roth, a general practitioner based in Basel, presented the key ideas from Rudolf Steiner's Stuttgart lecture in Stuttgart from 27 October 1922. She described, among other things, the importance of warmth formation in the first three seven-year cycles of human life in relation to the polarity between the nerve-sense and metabolic organisations. During the phase of organ development, not only quantitative warmth, but also the timing of its occurrence plays a role. Specifically, Steiner considered the first seven-year period, up to the beginning of the change of teeth, to be a particularly crucial life phase, since quantitative warmth (e.g. fever) predisposes the child to later health or to diseases such as cancer.

In this lecture, Rudolf Steiner also recommended enveloping the tumour with a «coat of warmth» for the treatment of cancer. This effect can be achieved by in-

The next Arlesheimer Studientag Mistel und Krebs will take place on 24 and 25 October 2025

jecting a mistletoe preparation. The lecture from 27 October 1922 thus forms one of the essential primary sources for the VfK in the further development of mistletoe preparations.

Dr Marion Debus, co-leader of the Medical Section at the Goetheanum, presented the current status of «Warmth Research» in oncology with her contribution «Spiritual and scientific aspects of the warmth organism in cancer disease». Already Hippocrates (460 – 370 BC) emphasised the significance of warmth, postulating: «... those who cannot be cured by surgery may be cured by heat...».

Dr Debus pointed out that the human warmth organism has developed with our sense of self-awareness: compared to all other species, the human warmth organism is by far the most finely regulated. The development of the human brain as the physical foundation of our sense of self-awareness is connected to our warmth organism.

Dr Debus also presented many fascinating studies, a few of which will be discussed here. For instance, a study published by Qian et al. (2021) investigated whether administering immune checkpoint inhibitor infusions at certain times of the day had an impact on the efficacy of melanoma treatment. The study found that patients who received at least 20% of their infusions after 4:30 PM, i.e. at a time when the warmth organism is most pronounced in the body's periphery, had a shorter overall survival rate. A study by You et al. (2018) found that the social environment, which generates emotional warmth, plays a crucial role in cancer risk and prognosis, and that there is a lower cancer risk within large families. Generally, tumours appear to be associated with a weakened warmth organism as cancer patients develop less fever in response to infectious diseases compared to healthy controls. Dr Debus therefore emphasised the importance of warmth formation in tumour diseases, which may for instance be stimulated by movement, and may positively influence the immunological situation in the tumour situation.

After lunch break, participants had the opportunity to stimulate their own warmth organism through eurythmy therapy, music therapy, or therapeutic speech formation. In the afternoon, case reports and practice-oriented contributions on endogenous and exogenous hyperthermia rounded off the programme. Lively discussions took place among the attending professionals, and many topic-specific questions were posed to the speakers.

The next Arlesheimer Studientag Mistel und Krebs will take place on 24 and 25 October 2025. ■

Book Presentation: «Handbook for the $CuCl_2$ System» by Nicolaas Busscher and Paul Doesburg

For many years, the Society for Cancer Research (VfK) has been using the copper chloride crystallisation method for quality research on mistletoe preparations and homeopathic basic research and owns two crystallisation chambers for further development and application of the crystallisation method. The new book by Nicolaas Busscher and Paul Doesburg (researchers at the Pharmaceutical Processes Department of the VfK) has now been published, representing a milestone in the description and scientific foundation of the method.

The copper chloride crystallisation method ($CuCl_2$ $2H_2O$, dihydrate copper chloride) was developed in the 1920s. Since then, many individuals have worked with this method to explore forces beyond the physical-chemical level, known as etheric forces. Although the method appears simple at first glance, it is highly demanding due to its complexity. Creating images with scientifically optimised crystallisation chambers and evaluating them according to precisely defined criteria presents a significant personal, scientific, and financial challenge.

Over the past ten years, a transdisciplinary group of researchers has come together to address these challenges and develop a more holistic approach to evaluating crystallisation images. This has led to the creation of this 336-page handbook in English, supported by researchers from the VfK, who provided valuable insights. The VfK owns two crystallisation chambers, giving it extensive experience in applying the copper chloride crystallisation method.

The handbook is a milestone, as it provides a comprehensive representation of the historical and current knowledge of the biological, chemical, and physical aspects of the copper chloride crystallisation method. A precise understanding of these aspects is essential to differentiate the influence of etheric forces from physical-chemical forces and thus provide scientific evidence for the former.

The copper chloride crystallisation method is based on the phenomenon that tree-like patterns form when a copper chloride solution is crystallised together with an extract (e.g., from a plant or from blood). In particular, the needles of the resulting crystal are specific for the

examined product, allowing for a differentiation between, for example, vegetables from conventional and biodynamic farming or between different potentised medicines.

The crystallisation images are produced as follows: An aqueous sample of blood or a plant extract is mixed with an aqueous copper chloride solution in a petri dish. Under defined climatic conditions, the water and volatile components of the mixture evaporate. After 12 to 16 hours, crystallisation begins, and tree-like patterns typically form, usually originating from a nucleation site.

The resulting crystal needles are formed through a self-organisation process. In the aqueous state, copper chloride molecules are locally instable and are re-stabilised by diffusion and convection during evaporation. The additive, e.g. the plant extract, modifies this process, leading to branching of the needles.

To understand the organisation of the needles in a Gestalt, investigations have been conducted on the physical, chemical, and biological levels. However, the process underlying the formation of the images has not yet been fully understood. This is due to the fact that several processes occur during the self-organisation of matter, making it impossible to attribute the resulting Gestalt to a single individual processes. The process of Gestalt or shape formation seems to be influenced by a higher-level process (top-down process) that cannot be physically determined.

This book gives the reader an understanding of the complexity of research into etheric forces by explaining the chemical-physical processes as detailed as possible, showing how much has already been accomplished, and the further potential of the copper crystallisation method. ■

Handbook for the $CuCl_2$ system

The «Handbook for the $CuCl_2$ system» can be downloaded at:

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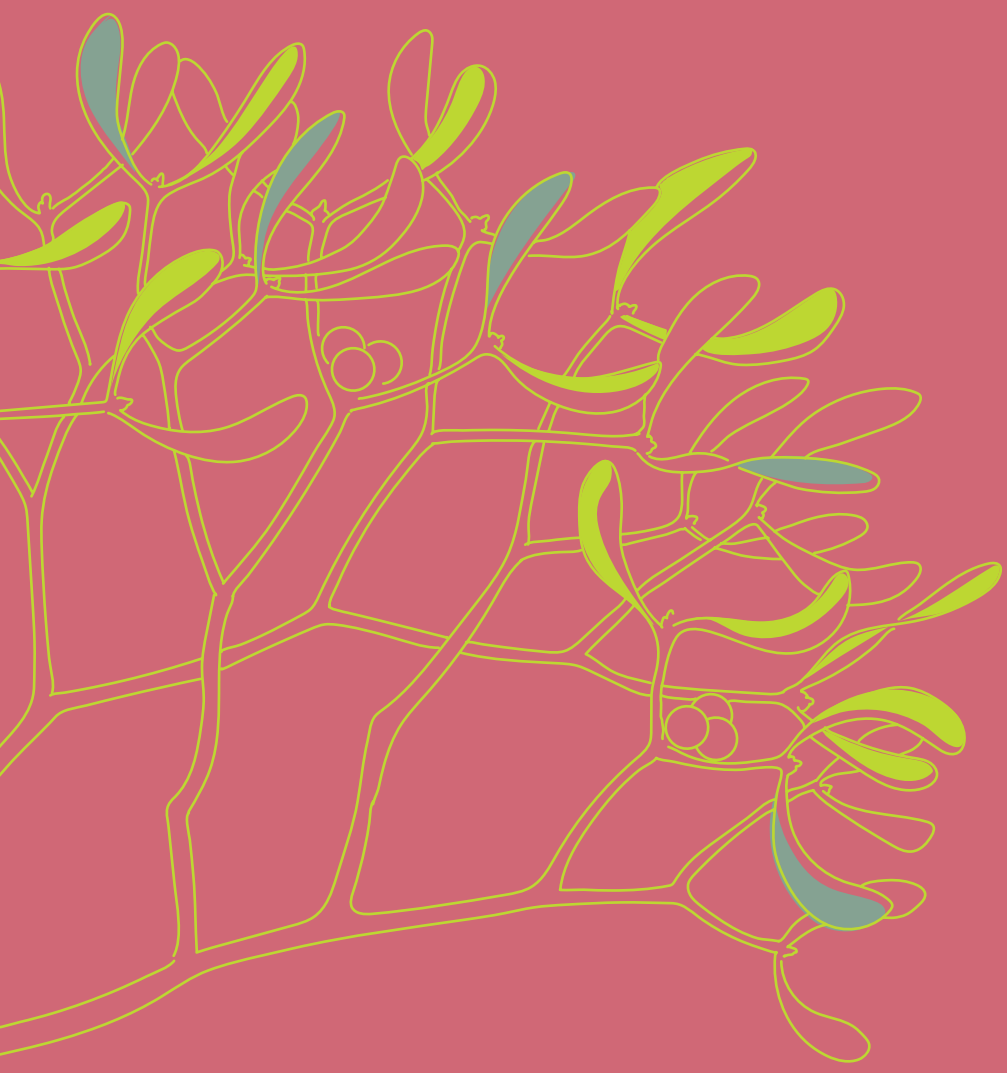

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