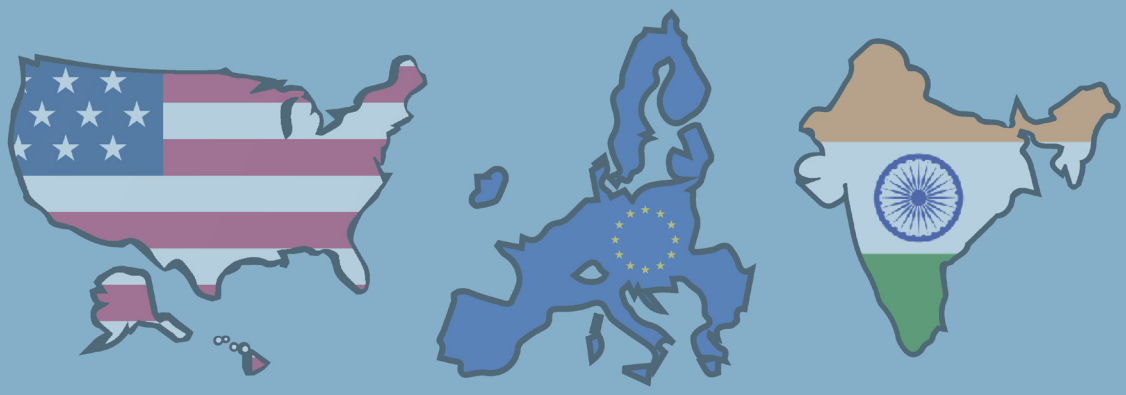
clean bite

"A revolution in oral hygiene"



Global Opportunities through Collaboration

Clean Bite, LLC & Livionex, Inc.

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clean bite

"A revolution in oral hygiene"

Present Collaboration Status
Between
Clean Bite, LLC and Livionex, Inc.
and the
Global Opportunity it Presents

Second Quarter 2022

This document is informational and is not an offer to sell a Security interest or a solicitation for investment in either Clean Bite, LLC or Livionex, Inc., as both companies are individually owned and operated.

Clean Bite, LLC has authored this abridged summary to raise awareness of its global potential and attract individuals who would be advantageous as members of its Board of Directors or Board of Advisors.

Interested parties may send their CV to info@CleanBiteTM.com

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Update on Clean Bite, LLC's Global Outlook
March 2022

Clean Bite, LLC addresses oral hygiene for people and companion pets with one awarded U.S. Patent and Pending Patents in the U.S., EU, and India. These filings represent protections that are made more meaningful through the collaboration with Livionex, Inc. and Clean Bite's use of LivFresh Dental Gel. The Clean Bite™ products are unmatched in design and enhanced using LivFresh, which has proven superior to Colgate Total in removing more plaque by 250% and is more effective than Crest Pro-Health at decreasing pocket depth while reducing gum bleeding by 1.9 times.

In 2021, the European Union awarded LivFresh its CE Mark, making it the only recommended OTC (over-the-counter) dentifrice to prevent and treat gingivitis and periodontitis. The prevalence of gingivitis in adults over 30 years of age in the U.S. is on the order of 65M, and it is the precursor to the more serious periodontitis that can lead to the loss of teeth and bone structure. The EU has a population about 35% greater than the U.S., and using similar percentages of adults over 30 years of age equates to 89M people similarly afflicted.

Periodontal disease is not exclusive to people, as 70% and 80% of cats and dogs have gingivitis at three years. Clean Bite™ product lines are for people and companion pets. Adding LivFresh to the equation has the significance of being a force multiplier that goes beyond just brushing teeth and clean breath.

This combining of IP enables the Clean Bite™ product line to perform to its optimum performance in providing oral hygiene for people who may from time to time be unable to utilize a traditional means of brushing due to a myriad of situations. Additionally, for companion pets, Clean Bite™ provides a regimen that brushes their teeth to remove plaque without the pet owners' tedious daily recommended involvement. In turn, LivFresh is available in multiple markets in a single-use application impacting the oral hygiene of people and their beloved companions.

RESEARCHANDMARKETS.COM's recent publication on the Pet Oral Care Products Market Forecast from 2021 to 2028 sights a CAGR of 6.5%, $1,465.07M in 2021 to $2,270.33M in 2028.

Another aspect is using the Clean Bite™ products as a delivery system for vitamins, therapeutics, medications, and vaccines. However, getting involved in the API market would better be done by a pharmaceutical company, using a licensing or other Agreement. We believe that one practical API application may address parasitic diseases that plague the developing world.

The future of Clean Bite, LLC and Livionex, Inc. as a collaborative effort offers seemingly boundless opportunities. The short-term goal is to develop high-speed manufacturing equipment deployed first in the United States while establishing alliances in the EU and India. The first European base is under consideration will be influenced by the invasion of Ukraine and how best to service the millions of displaced civilians.

Attempting to isolate the market into segments quickly becomes academic when R&D is the most relevant milestone to be accomplished. For example, targeting specific needs of the most vulnerable populations, identifying supply chains for raw material, and distribution networks are all things that can be milestones established during the equipment development period.

Any interested party will likely ask, how big is this opportunity? In the United States, we believe the largest single market is at-risk children who receive meals at school and have horrible dental statistics. For about 38¢ per Clean Bite™ I (as of Jan. 2022), these children can brush their teeth following every meal, and because the collagen contains 5 to 6 grams of protein per brush, it could be a net-zero trade-off for another item on the tray with less protein.

Using that price point scenario, per school year of 180 days would be $68.40. If the reduction is only one caries per student, the savings could be significant considering the range of costs for a filling being $50 to $300 or more depending on the number of faces of the tooth. More important is the human toll; two-thirds of the U.S. student population live below, at, or near the poverty level. When caries (cavities) go untreated, they progress to multiple faces of the tooth, ultimately ending in extraction, which is tragic in a country that for over twenty years has identified caries as the most prevalent childhood disease and the most curable.

The USDA will sponsor **all** student meals for the 2021-2022 school year and is likely to continue. The number of meals is around 10 Billion per year, not including other programs through the summer outside of the school year. That multiple works out to $3.8 Billion; it also pales in comparison to the aggregate market of the United States.

We have not found any comprehensive reports addressing the oral hygiene suffered by refugees and dislocated civilian populations in Ukraine and neighboring nations due to Russia's invasion. The sheer magnitude of which could outstrip any of the aforementioned human needs.

Compared to the populations just in the countries where we have defensible Intellectual Property, it represents more than 25% of the world's population. In addition are those countries where the CE Mark holds greater recognition than the approval of the FDA.

Clean Bite, LLC has neither the time, money, or expertise to address the humanitarian crisis of Eastern Europe, much less the rest of the world. Therefore we are seeking collaboration from companies whose business is to take on monumental challenges of humanity. If interested, contact Clean Bite, LLC at (Info@CleanBiteTM.com).

To receive future information on potential investment into Clean Bite, LLC, contact us at: (Investment@CleanBiteTM.com). We will attempt to keep you apprised of when and if an investment opportunity is available to the public.

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Friction vs Chemistry for Plaque Biofilm Management

10 December 2021 9 Mins Read

Drs. Peter Jacobsen and Brian Novy

Scrubbing has long been the central strategy for cleaning teeth. The bristles of toothbrushes and the silica in toothpastes treat the teeth much the same as we would treat a shower or sink that needs cleaning, even as the mouth is a complicated system made up of a variety of oral tissues. The untargeted approach of abrasion-based oral care can often result in damage to tooth structure, impeding the remineralization of the enamel and diminishing one's overall oral health. A modern understanding of plaque and the physics of how it attaches to teeth leads us to more gentle and effective methods of preventing plaque accumulation. Developments in the application of chelation—the binding of ions and molecules to metal ions—provide an unprecedented level of targeted, effective, and gentle oral care. Chelating agents in toothpastes, used at appropriate levels, can remove and prevent the buildup of undesirable bacterial plaque while leaving healthy levels of desirable calcium, achieving the chemical balance that is foundational to oral health.[1]

Bacterial plaque, as well as the formation of calculus on teeth and around the gingiva, has been intricately linked to the development of oral diseases such as caries, gingivitis, and periodontitis.[2] Hence, plaque and calculus control are considered crucial to the effective self-management and prevention of oral disease development. Clinicians often counsel their patients to carefully remove plaque via the physical action of tooth brushing; however, the chemistry of plaque, calculus, enamel, dentin, and saliva constitute an intricate relationship. Only a handful of elements are present at the tooth surface that allow plaque to accumulate. Calcium is one of those elements. It plays a vital role in the development of both dental biofilm and calculus[3] (ie, when calcium is in the wrong place at the wrong time) while also serving as the main atomic building block of enamel and dentin (ie, when calcium is in the right place at the right time).

Both hydroxyapatite (HA) and the substances that form upon it contain the same 2 molecules: calcium phosphate and hydroxyl ions. Even if the teeth are completely free of plaque, calcium ions in the dental enamel are continually removed and added in a dynamic demineralization-remineralization process known as the "demin-remin cycle." This cycle occurs because food and drinks contain corrosive, calcium-depleting acids that give the food and drinks flavor. Fortunately, humans have saliva to protect enamel and replenish the healthy calcium and phosphorus diminished by that corrosion. Salivary proteins ensure that saliva is supersaturated with calcium phosphate; armed with an excess of these mineral ions, healthy saliva drives remineralization by replenishing calcium and phosphate lost from the tooth surface. Healthy saliva also creates what is called the "acquired enamel pellicle," which serves to further protect the enamel and acts as an ion diffusion barrier.

While some intraoral bacteria can form a mutually symbiotic, healthy biofilm that confers resistance to disease, oftentimes, the biofilm that is closest to the tooth surface becomes detrimentally acidic, thereby creating an environment that dissolves tooth structure. Without chemical neutralization or the removal of that acidic biofilm, the tooth surface becomes dysbiotic and may begin to demineralize, creating an initial caries lesion.

Unremoved *non*-acidic plaque has an opposite, though still detrimental, effect. When it is bathed in calcium- and phosphate-rich saliva, the non-acidic plaque calcifies due to the ions deposited within it. Thus, both acidic *and* non-acidic plaque damage gums and play key roles in the development of receding gums, gingivitis, and periodontitis.[4]

Anti-calculus agents are used extensively in toothpaste to delay and interfere with dental plaque calcification. The most common anti-calculus agents are metal chelators.[1] Chelation is a chemical reaction in which ions and molecules (ligands) become bonded to metal ions; this bond involves the formation or presence of 2 or more separate coordinate bonds between a polydentate (multiple-bonded) ligand and a single central metal atom. Essentially, the chelator is a molecule designed to grab onto a metal ion.

The most common anti-calculus chelators include ethylenediaminetetraacetic acid (EDTA), sodium hexametaphosphates (SHMPs), and pyrophosphates. They all work with essentially the same mechanism: Each has a high affinity to HA surfaces thanks to an interaction with calcium ions (Ca^{2+}) in the hydration layer. In this interaction with HA and enamel surfaces, chelators reduce the protein-binding capacities of these surfaces. They also have the ability to inhibit calcium phosphate formation.[5] Essentially, chelators get in the way of the calculus-hardening process: Like adding bowling balls to a brick wall, the calculus structure becomes wobbly and weak and thereby slower to accumulate and easier to remove.

Some chelating processes occur naturally in nature, such as in serum or biological tissues. Chelators have also been developed as tools for a wide range of industrial applications, including water softening and food preservation. Their ability to bind to and remove metal ions, especially unwanted calcium, means that chelators also have many important medical applications, as chelating effects can be achieved at a near-neutral pH.[6] Chelators are already commonly used in dentistry; endodontic instrumentation relies upon chelators to facilitate canal cleaning by binding to calcium to assist in its removal. In addition, chelators are often the active ingredient in tartar-control toothpastes, where they bind to excess salivary calcium ions in order to prevent those ions from precipitating and forming dental calculus.[1] It is important to note, too, that the efficacy of chelators in tartar-control toothpaste is predicated upon the fact that one usually brushes twice a day for roughly 2 minutes, which means that chelators from toothpaste are only active in the mouth for about 4 minutes in an entire day. This relatively brief timespan ensures the safety of chelating agents in that they are not removing too much calcium from the mouth, allowing the vast majority of calcium ions necessary for oral health to remain (Figures 1 and 2).

Figure 1. A low-caries-risk adult male refrained from oral hygiene for 24 hours. A disclosing agent was applied (GC TriPlaque ID Gel [GC America]) to visualize the plaque.

Figure 2. The maxillary teeth were brushed for one minute with an over-the-counter, fluoride-containing toothpaste (control). The mandibular teeth were brushed for one minute with LIVFRESH Dental Gel (Livionex) (test). The LIVFRESH gel resulted in a lower plaque score after brushing compared to the control.

There are differences in the amount of chelation achieved by the various leading chelators used in tartar-control toothpastes. The most commonly used chelators for calculus control are pyrophosphates, SHMPs, Gantrez (a copolymer of maleic acid), and EDTA. Each of these compounds is safe and effective in binding to calcium and other metals. Each chelator has its own affinity for metal ions (this affinity is a measure of its ability to hold on to a metal ion once it is bound). Table 1 shows the varying levels to which these chelators reduce the rate of calculus formation.

Studies have shown that pyrophosphates reduce the rate of dental calculus formation by around 30%, while SHMP reduces it by up to 50%.[8]

Colgate Total with Triclosan contained 2% Gantrez, a maleic acid copolymer.[3] Gantrez is used in dentifrices and is described as a "bioadhesive polymer"[4] that adheres to oral surfaces.

According to Ashland Corp, it "function(s) by chelating metal ions….Calcium phosphate occurring naturally in the mouth normally forms a pre-calculus or tartar seed on the teeth….[Gantrez] attacks the tartar seed and the seed dissolves."[9] The dissolution of the pre-calculus is achieved by chelating the calcium.

Table 1. Chelating performance in rate of calculus formation.[7]

Chelating molecule	Milligrams of $CaCO_3$ sequestered per gram of chelator
Gantrez S-95 polymer	775
NTA Acid	525
NTA Na_3	375
EDTA	340
TPPP	295
EDTA NaH_2	285
STPP	265
EDTA Na_4	240
Zeolite A Hydrated	225
HEDTA Acid	173
DTPA Acid	156

EDTA disodium is another well-known chelator that has been extensively studied since its development by Ferdinand Munz in Germany in the early 1930s. EDTA is commonly used as a chelator added to many food items as a preservative. In high concentrations (18% to 25%), it is useful in removing smear layers during root canal preparation.

Given the safety and efficacy of chelators, research has explored ways to implement chelation in methods of plaque control that are even *more* targeted and effective than conventional uses of chelation. One major development has involved using chelators to strengthen the natural negative electronic charge of the tooth surface to repel unhealthy calcium, thereby achieving the dual aims of making unwanted calcium in the plaque fluid (calcium in the wrong place at

the wrong time) easy to remove from the tooth environment without getting rid of the calcium necessary for oral health.

Tooth surfaces are negatively charged, and so are bacteria; therefore, they should repel each other. However, salivary calcium coats the negative charges on the tooth surface and bacteria, allowing them to get very close (within 10 nm). At this point, van der Waal's forces (attractive electrostatic forces at small distances) take over, allowing the bacteria to deposit on the tooth surfaces, initiating biofilm formation.[10] A unique formulation of EDTA strengthens the negative electronic forces of the tooth, allowing the teeth to repel harmful plaque. This special formulation quickly penetrates through the plaque down to the tooth surface. There, it changes the surface charge back to negative by neutralizing the positively charged calcium ions. This new, stronger negative charge on the tooth surface environment simply allows the plaque and the tooth surface to repel each other. This requires neither an abrasive nor killing the bacteria (Figure 3).

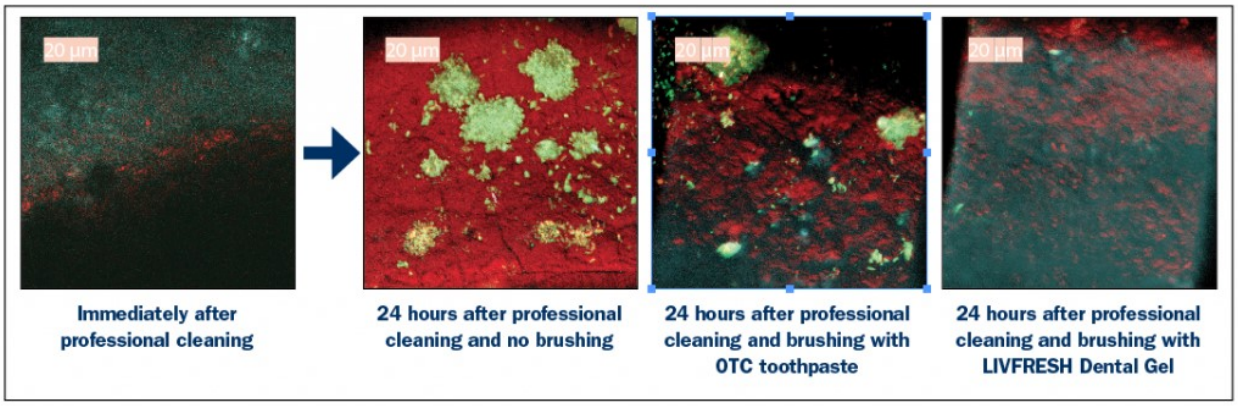

Figure 3. Bacteria fluoresces red, and the extracellular plaque matrix fluoresces yellow. Fluorescence microscopy of the dental biofilm was performed using an LSM 510 Meta Confocal Microscope system (ZEISS).

This specialized formulation of 2.6% EDTA, which is currently available in LIVFRESH Dental Gel (Livionex), not only repels the bacteria but also remains on the tooth surface—a characteristic known as substantivity—and slows down the rate of future bacterial attachment to that tooth surface, reducing the rate of plaque buildup. In addition, the increased negative charge of the tooth surface weakens the attachment of plaque to the tooth surface, making it easier to remove the next time the tooth is brushed. Brushing at night with this formulation of 2.6% EDTA has been shown to significantly lower plaque buildup overnight.[11] This "smart technology" mechanism effectively controls plaque and tartar buildup without the need for abrasives, soaps, and bactericidal chemicals (Figures 4 and 5).

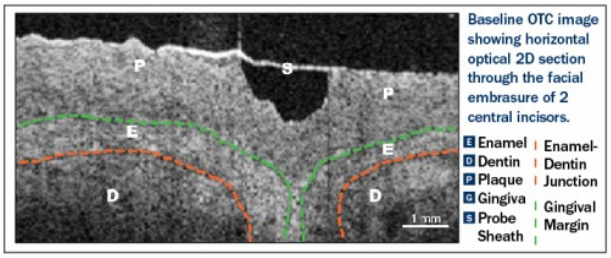

Figure 4. Representative OCT images of the subject in the test gel group. At the study's outset, a thick plaque layer covering the gingival and enamel surfaces is clearly visible.

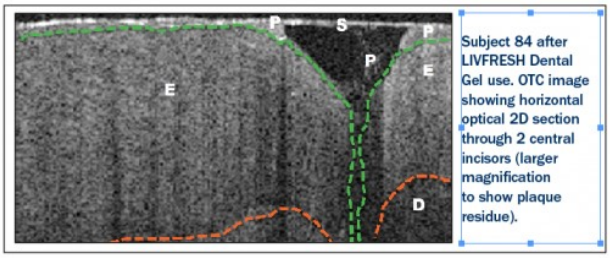

Figure 5. After 3 weeks of test gel usage, extensive elimination of surface biofilm is apparent. A thin patch of residual biofilm remains at the gingival margin. (The enamel appears wider in this image because of an oblique optical section used to reveal the small deposit of biofilm, which was not visible at the usual imaging angle.)

As Table 2 shows, the per-brush chelating capacity of LIVFRESH Dental Gel is extraordinarily targeted and is less than 10% of the chelating capacity of the 13% SHMP used in Crest Pro-Health.

The amount of toothpaste used in a single brushing of Colgate Total or Crest Pro-Health would chelate 6 or 13 times the amount of calcium, respectively, that would be chelated by the same amount of LIVFRESH Dental Gel used in a single brushing, even as LIVFRESH has shown remarkable efficacy in the removal of plaque. In multiple controlled studies, the use of the uniquely formulated 2.6% EDTA has consistently resulted in lower plaque, gum inflammation, and bleeding compared to other toothpastes.[15-17] Most recently, a double-blind study published in the *Journal of Periodontology* confirmed that, without prophylaxis, 2.6% EDTA showed statistically and clinically significant reductions in pocket depths and gum inflammation and bleeding compared to a leading stannous fluoride-containing anti-gingivitis toothpaste in early/moderate (stage 1 and stage 2) periodontitis patients.[18]

Table 2. Comparison of calcium chelation in a single brushing.

Toothpaste	Chelator molecule	Concentration	Chelation capacity[a] (mg)	Calcium chelated per gram of dentifrice (mg)	Dentifrice used per brushing (g)[b]	Calcium chelated per brushing (mg)
LIVFRESH Dental Gel	EDTA	2.6%	285	7.4	0.6	**4.4**
Colgate Total[c]	Gantrez	2.0%[12]	775	15.5	1.7	**26.4**
Crest Pro-Health	SHMP	13.0%[13]	259[d]	33.7	1.7	**57.3**

[a] In milligrams of calcium carbonate sequestered per gram of chelator molecule (*Synthetic Detergents, Seventh Edition*, Longman Scientific & Technical, 1987).[14] [b] Per product instructions. [c] Colgate Total with Triclosan. [d] Based on molecular weight and # of calcium ions chelated by disodium EDTA and SHMP; chelation capacity of the same mass of SHMP as compared to chelation capacity of the same mass of disodium EDTA is (259/285 =) 91%

CONCLUSION

The selectively focused use of chelators has the potential to effectively control dysbiotic oral diseases by increasing the negative charge of teeth to repel plaque naturally. At the same time, this novel approach is respectful and supportive of healthy oral flora. Repurposing a safe, popular tartar-control agent to repel plaque offers an exciting future for more effective home care that does not rely on abrasives and antimicrobials.

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ABOUT THE AUTHORS

Dr. Jacobsen has a PhD in Comparative Pharmacology and Toxicology, and he directed the Oral Medicine Clinic at the University of the Pacific, Arthur A. Dugoni School of Dentistry in San Francisco for 25 years. He is a Diplomate of the American Board of Oral Medicine and a past chairman and vice-chairman of the ADA Council on Scientific Affairs. He has been named as one of *Dentistry Today*'s Leaders in Continuing Education for several years. He also received the 1999 Gordon J. Christensen Lecturer Recognition Award. He writes the *Dental Drug Booklet*, a succinct handout and reference on commonly prescribed dental medications. Dr. Jacobsen lectures extensively on dental pharmacology as well as over-the-counter dental drugs and products. He also presents on the topic of the dental management of medically complex patients. He can be reached at pgjacobs@pacbell.net.

Dr. Nový is the chief dental officer of the Alliance Dental Center, Massachusetts Public Employees Fund, and holds faculty appointments at the Harvard School of Dental Medicine and Western University. He served on the ADA Council of Scientific Affairs from 2011 to 2014 and as president of the National CAMBRA Coalition. In 2016, he was appointed the consumer representative to the US Food and Drug Administration Dental Products Panel. He is the recipient of the Dugoni Award, the Weclew Award, and the 2021 ADA Evidence-Based Dentistry Practice Award. He can be reached at drbriannovy@gmail.com.

Disclosure: Drs. Jacobsen and Nový are members of the Livionex Scientific Advisory Board.

MARTY JABLOW DMD, DENTAL NEWS AND TECHNOLOGY

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June 16, 2021

LIVFRESH BECOMES THE WORLD'S FIRST EUROPEAN UNION CE MARK CERTIFIED TOOTHPASTE FOR PREVENTION & TREATMENT OF PERIODONTITIS & GINGIVITIS AS AN ADJUNCT TO PROFESSIONAL CARE

~ As Mounting Evidence Connects Gum Disease to Covid Complications, Silicon Valley Based LIVFRESH Dental Gel is approved in the European Union as the First Over the Counter Toothpaste for Consumers Suffering from Periodontitis or Gingivitis. These Oral Diseases Affect up to 90% of All Adults.

Los Gatos, CA—June 2, 2021—As the world continues to fight COVID, and since serious gum disease (periodontitis) has been implicated as a complicating factor, good oral health is more important than ever. Livionex Inc., the company behind LivFresh Dental Gel, today, announced its therapeutic non-abrasive and detergent-free toothpaste is the first in the world to meet requirements under the European Medical Device Regulations as an over-the-counter toothpaste for the prevention and treatment of periodontitis and gingivitis. The company highlighted that LivFresh is positioned as the toothpaste of choice for daily home care, and a critical tool to support professional dental care for the effective treatment of periodontitis.

LivFresh Dental Gel has received European approval as a medical device with therapeutic claims. This is accomplished by getting a CE Mark certification, which means that LivFresh met strict safety and performance criteria under the European Medical Device Regulations as an over-the-counter product to both prevent and treat periodontitis and gingivitis.

LivFresh Dental Gel is registered as a CE Marked product with the German Federal Institute of Drugs and Devices. EU Medical Device approvals are recognized across European countries as well as in most Asian countries, all South and North American countries except USA, and Africa.

"LivFresh Dental Gel represents a huge breakthrough in oral care worldwide. While there are toothpastes that treat and prevent gingivitis, there is no toothpaste approved by any regulatory agency that can claim treatment and prevention of periodontitis, a severe form of gum disease," said Peter Jacobsen, DDS, PhD, a nationally recognized expert on dental pharmacology, and the former Chairman of the ADA Council on Dental Therapeutics.

"The timing of the certification couldn't have come at a more critical time as the incidence of gum disease worldwide has hit epidemic proportions. Research shows that periodontitis is linked as a risk factor, to many systemic diseases. Recently it has also been linked to a nine-fold (900%) increase in mortality of COVID-19 patients," added Hirsh Goswamy, VP of Marketing, Livionex.

Gum disease affects up to 90% of all adults in developed countries including USA and Europe. In the U.S., periodontal disease, a severe form of gum disease, affects 47.2% of adults aged 30 years and older, which is about 65 million Americans. The European prevalence of periodontitis is similar.
"The management of periodontitis requires effective daily plaque control by the patient. This remains a challenge for most patients. The LivFresh study results show that periodontitis patients can achieve significant benefits of better oral health, without changing their daily brushing habits," said Dr. Nicolaas Geurs, a leading internationally recognized periodontist and professor and chair of the Department of Periodontology at the University of Alabama at Birmingham School of Dentistry.

LivFresh's unique mechanism of action enables the tooth surface to repel plaque at the molecular level. This is different than traditional toothpastes which rely on scrubbing and antimicrobials to clean plaque. Multiple double-blind studies published in peer reviewed journals have documented the superiority of LivFresh Dental Gel over traditional toothpaste.

A groundbreaking double-blind clinical study recently published in the Journal of Periodontology, showed that the group that brushed with LivFresh dental gel saw 80% of their diseased pocket depths improve. Pocket depths are markers for periodontitis. These results are similar to the reported average improvement observed with professional scaling and root planning when used with FDA-approved locally delivered antibacterial drugs.

Additionally, the above study showed that compared to the group using the FDA approved anti-plaque, anti-gingivitis control toothpaste, subjects who brushed with LivFresh saw 2.5 times less gum inflammation and 1.9 times less gum bleeding.

"LivFresh study results indicate a big step forward in the arena of patient/professional co-treatment of inflammation-based periodontitis. LivFresh presents a novel and significant addition to the clinical control and management of periodontal disease," added Dr. Nicolaas Geurs.

LivFresh Dental Gel is currently available as a toothpaste for superior plaque removal on-line atGetLivFresh.com and in select dental offices across the country.

About LIVIONEX
Livionex Inc. was founded in 2009 with the goal of enhancing the quality and longevity of human life. Headquartered in Los Gatos, California, USA, Livionex develops novel therapies for a variety of age-related diseases affecting billions of people worldwide. The Company's products are based on its proprietary technology and has clinical stage products in ophthalmology, dermatology, and oral care. The first product to market is LivFresh Dental Gel. LivFresh is used and recommended by thousands of dentists and hygienist, and patients. It is currently available on-line and in select dental offices across the country. The technology underlying LivFresh has been validated by numerous studies and sources, including dental professionals, the U.S. Department of Defense, and the US National Institutes of Health. More can be found at www.GetLivFresh.com

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Effects of a Dental Gel Over 6 Months on Periodontal Health in Subjects with Stage II and III (Mild and Moderate) Periodontitis

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Abstract

Objective:

Overall aim of this prospective, randomized, positive controlled, double-blind in vivo study was to identify the effects of a test dental gel containing 2.6% edathamil with an added carrier and permeability enhancer vs. a positive control dentifrice on periodontal health measures in patients with Stage II and III periodontitis.

Methods:

In this prospective double-blinded, randomized study, 33 subjects were randomly assigned in a 1:1 ratio to brushing their teeth with either the test gel (LivFresh®, Livionex Dental Gel, Los Gatos, CA 95030) or the positive control toothpaste (Crest ProHealth®, P&G, Cincinnati, OH 45202).Full-mouth gingival index, modified sulcus bleeding index, and periodontal pocket probing depths were recorded for all teeth at baseline, and on days 90 and 180.Subjects brushed with the study material twice a day.

Results:

The test dental gel reduced gingival inflammation and bleeding, as well as periodontal pocket probing depths significantly more than a control dentifrice.

Conclusions:

In this pilot study in subjects with Stage II and III periodontitis, a test dental gel was found to improve gingival inflammation and bleeding, as well as periodontal pocket depths significantly better than a control dentifrice.

Keywords: Pocket depth, Gingival inflammation, Dentifrice, Dental gel, Periodontal health

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Introduction

Persistent oral biofilm is connected with the development of periodontal disease [1,2]. Typically, plaque is removed through oral hygiene measures that include brushing, flossing and other adjunct means of targeted plaque removal.Gingival inflammation typically resolves in response to removal of microbial plaque by means of effective oral hygiene [3]. Inadequate plaque control can cause gingivitis, an inflammation of the gingival tissues that can be reversed by effective plaque control and professional prophylaxis to remove plaque and calculus [4]. It is estimated that up to 50–90% of adults are affected by

gingivitis [5]. Persistent gingivitis can cause periodontitis, which is associated with progressively deepening periodontal pockets, and loss of hard and soft tissues that are the supporting structures of the teeth [1,2]. The prevalence of periodontitis in the US population is estimated to approximate almost 50% of adults [6]. Moreover, the adverse systemic health effects of oral biofilm add urgency to the quest for more effective approaches to oral hygiene.

Despite considerable research into improving mechanical plaque control through better toothbrush design, innovative dentifrice formulations and a wide range of adjunctive measures, most individuals struggle to achieve effective and/or adequate plaque removal [4,7–9]. In the United Kingdom a survey found that at least one-third of all teeth had visible plaque in 72% of adults [10].To support a better cleaning action, many dentifrices contain adjuncts formulated to improve cleaning action, discourage plaque reaccumulation, or have an antibacterial effect [5,11,12].

Common ingredients in over-the-counter dentifrices include flavorings, chelators, colors, preservatives, foaming agents, abrasives and detergents.Some recent toothpaste formulations avoid these ingredients as a way of avoiding some of the potential disadvantages of these components. For example, abrasives can produce abrasion of exposed cementum or dentine, especially in older patients with recession and areas of exposed root surface [13].Abrasivenanoparticles have been identified in the bloodstream, raising concern about systemic spread and potential effects at a cellular level in the heart, liver, lungs, and kidneys. There have been reports of potential crossing of the blood-brain barrier by some nanosphere abrasives, providing access to the CNS with unknown risks or effects [13–16]. Side effects of other ingredients in some patients include adverse epithelial mucosal conditions that have been associated withsodium lauryl sulfate and other detergents [13–16] and sensitivity or allergic reactions from artificial coloring agents [16].

One recent approach to improving plaque removal and reaccumulation has been the incorporation of the micro-chelator edathamil into a dental gel (LivFresh®, Livionex Dental Gel, Los Gatos, CA 95030). By binding cations such as iron and calcium, microbial adherence, biofilm formation and bacterial growth are impeded [17]. In order to improve its ability to penetrate into biofilm, a carrier and permeability enhancer are also

contained in the dental gel [18]. Several studies have reported that biofilm formation and adhesion are disrupted by this edathamil-containing dental gel, resulting in more effective plaque removal, reduced biofilm reaccumulation, and improved gingival health [19–24].

Overall aim of this prospective, randomized, positive controlled, double-blind clinical in vivo study was to determine identify the effects of a test dental gelcontaining 2.6% edathamil with an added carrier and permeability enhancer *vs.*a positive control dentifrice on periodontal health measures in patients with Stage II and III periodontitis.

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Materials and Methods

Study Population and Methodology:

This project was performed at the University of California, Irvine, in full compliance with University of California, Irvine IRB-approved protocol #2013–9778. It was registered on Clinicaltrials.gov under the reference number NCT02271815.

A. Subjects

Subjects Inclusion and Exclusion Criteria:

Thirty-three study participants were recruited from students and staff of the University of California, Irvine by IRB-approved flyers and e-mails. The following inclusion and exclusion criteria were applied:

1) Inclusion Criteria

1. Male or female subjects 30 years or older
2. Minimum of 20 teeth
3. Plaque index >2; Gingival Index >1.5; mSBI >1
4. Mild to moderate periodontitis as determined by the Armitage classification (1–4mm CAL)
5. At least 4 sites with periodontal pocket depth (PPD) ≥4mm

6. Bleeding on probing on >50% of teeth, as determined by single-pass probing depth measurements
7. Willing and able to provide written informed consent
8. Willing and able to comply with study visits as described in the protocol
9. Available for follow up on the telephone.

2) Exclusion Criteria

1. Unable or unwilling to sign the informed consent form
2. Participation in any other clinical study within the last 30 days prior to enrollment into this study
3. Subjects who must receive dental treatment during the study dates
4. History of significant adverse effects following use of oral hygiene products such as toothpastes and mouth rinses. Allergy to personal care/consumer products or their ingredients
5. Presence of any condition, abnormality or situation at baseline that in the opinion of the Principal Investigator may preclude the volunteer's ability to comply with study requirements, including completion of the study or the quality of the data
6. Within 1 month prior to baseline, any quadrant or maintenance root planning, and/or periodontal surgical therapy
7. Pregnant females
8. Tobacco use
9. Sjögren's disease
10. Immune deficiency diseases, i.e., HIV or AIDS
11. Poorly controlled diabetes
12. Anti TNF-alpha medication for rheumatoid arthritis
13. Systemic antibiotics in the last 3 months
14. Anti-inflammatory drugs

15. Immune suppressants.

B. Design and Protocol

After eligibility was determined, and after obtaining informed written consent, subjects were randomly assigned in a 1:1 ratio to treatment with either the test gel or the positive control toothpaste. Full-mouth gingival index, modified sulcus bleeding index, and periodontal pocket depths were recorded for all teeth (TT). Subjects were provided with a new standard Oral B ProFlex® toothbrush (Procter & Gamble, Cincinnati, OH, 45202, USA) and trained using the tell-show-do method in the standard sulcular brushing technique by the same clinician (TT)(Figure 1).

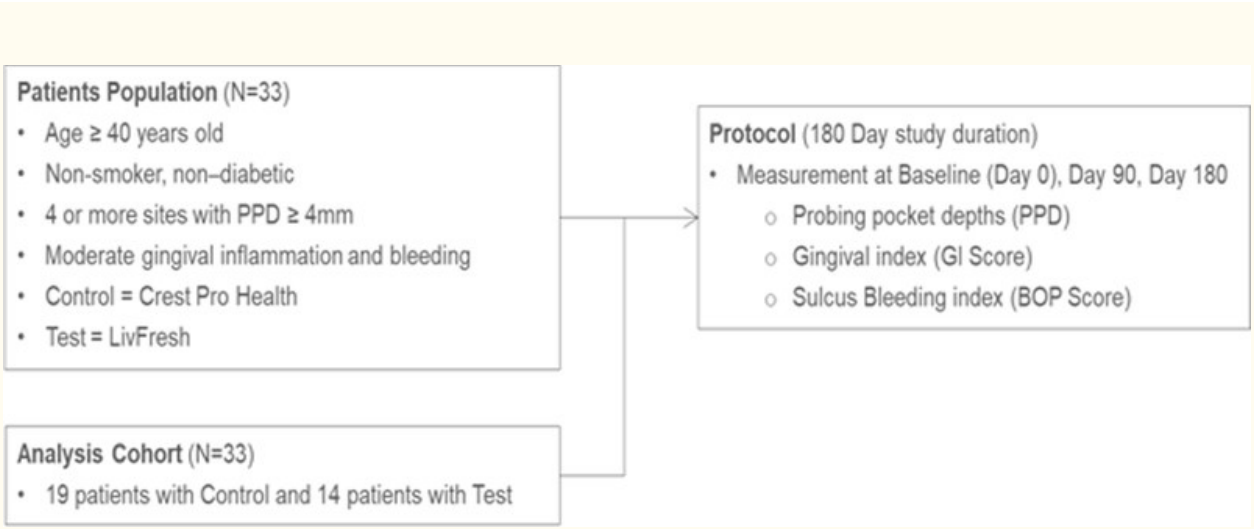

Figure 1:

Protocol Summary Flowchart.

Subjects were instructed to brush with the study material twice a day and to use a pea size amount of the dentifrice provided. They were requested to bring back the empty and partially emptydentifrice tubes at each visit and each tube returned was weighed to measure compliance. Subjects were provided with de-identified plain white, numbered tubes of toothpaste and new toothbrushes at each study visit. They were also asked not to use any other oral hygiene products throughout the study duration.

The first brushing occurred during the Baseline (day 0) visit. Study duration was 180 days; subjects were evaluated at baseline (day 0), day 90, and day 180.

C. Products

Test dental gel: Livionex Dental Gel® (Livionex, Los Gatos, CA 95030).

Ingredients: water, sulfonylbismethane, edathamil, stevia, peppermint, menthol essential oils, iota carrageenan gum, konjac gum and lecithin.

Control dental gel: (Crest ProHealth®, P&G, Cincinnati, OH 45202).

Ingredients: Stannous Fluoride, Glycerin, Hydrated Silica, Sodium Hexametaphosphate, Propylene Glycol, PEG-6, Water, Zinc Lactate, Trisodium Phosphate, Flavor, Sodium Lauryl Sulfate, Sodium Gluconate, Carrageenan, Sodium Saccharin, Xanthan Gum, Blue 1.

D. Variables Recorded

At each appointment, the following variables were measured by the same blinded, pre-standardized, experienced periodontist (TT):

1. Gingival Index (GI): Löe and Silness Gingival Index [25]
2. Sulcus Bleeding Index (mSBI) [26]
3. Periodontal Pocket Probing Depths (PPD) using a standard UNC probe.

E. Data Analysis

The clinical value for each measurement on each tooth on Day 0 was used as baseline value for the subsequent time points of the study. The effects of each dentifrice on each of the variables measured were tested using the % change from baseline for all variables at 3 months and 6 months. A T-test was performed to test for difference between the two treatments. The results are shown in Table 1.

Table 1:

Summary of Results. Clinical indices and measurements at Baseline, 3 months & 6 months and statistical analysis.*denotes statistically significant at the 0.05 level.

		Control (n=19)	Test (n=14)	Note
# of Teeth per patient		26.16	25.07	
PPD ≥ 4mm	BL	4.23 mm	4.22 mm	
	3M	3.45 mm (0.78 mm/18.4%)	3.13 mm (1.09 mm/26.0%)	P-value=0.0142*
	6M	3.34 mm (0.89 mm/21.0%)	3.04 mm (1.18 mm/28.1%)	P-value=0.0142*
All PPD	BL	2.56 mm	2.49 mm	
	3M	2.47 mm (0.09 mm/3.2%)	2.28 mm (0.21 mm/8.1%)	P-value=0.0140*
	6M	2.40 mm (0.16 mm/5.8%)	2.17 mm (0.32 mm/12.1%)	P-value=0.0108*
Mean GI Score	BL	2.45	2.54	
	3M	2.27 (0.18/7.5%)	2.21 (0.33/13.0%)	P-value=0.0152*
	6M	2.25 (0.20/8.3%)	2.04 (0.50/19.6%)	P-value=0.0002*
Mean mSBI Score	BL	2.44	2.55	
	3M	2.32 (0.11/4.5%)	2.24 (0.31/12.0%)	P-value=0.0032*
	6M	2.27 (0.17/6.6%)	2.10 (0.45/17.3%)	P-value=0.0004*

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Results

A. Subjects

Thirty-three study participants were recruited using IRB-approved flyers and e-mails. Of these 33 recruits, all were enrolled, none were excluded, and none dropped out. Thus all 33 study recruits completed the study as instructed.

B. Study Results

C. Gingival Index

Mean Baseline GI measured 2.54 for the test group, and 2.45 for the control group.After 3 months, GI was significantly lower in the test (2.21) *vs.* the control (2.27) group (p=0.0152). This trend was considerably stronger at the 6-month time point, when GI measured 2.04 in the test group*vs.* 2.25 in the control group (p=0.0002)(Table 1 and Figure 2).

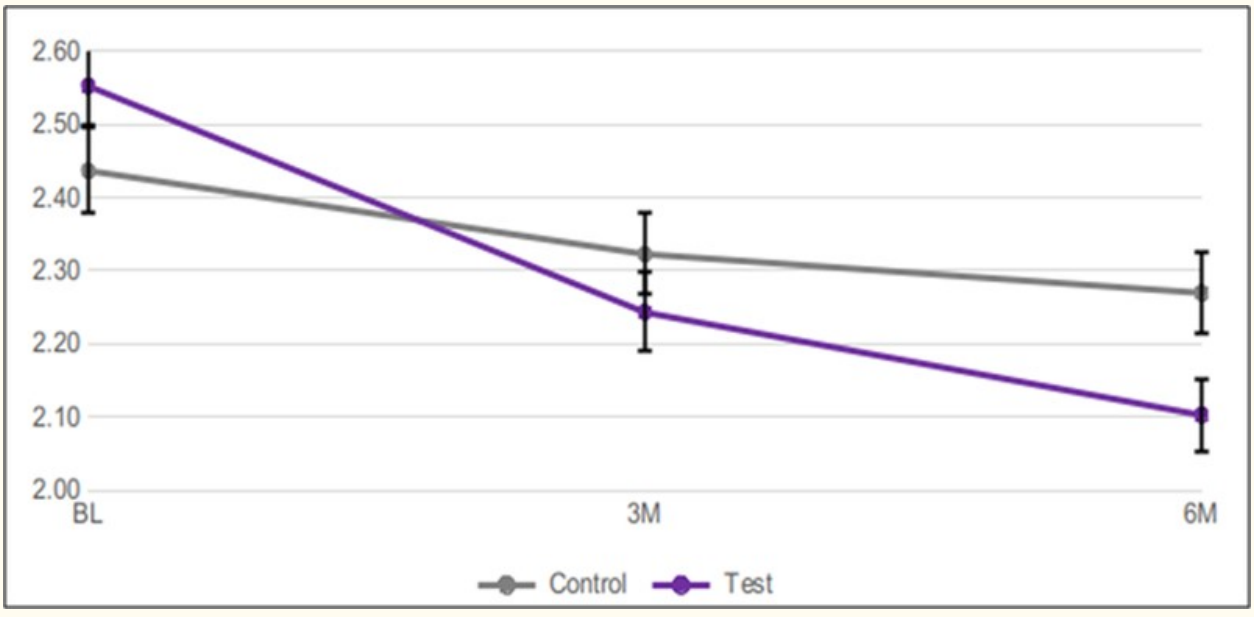

Figure 2:

Mean GI over 6 months using test *vs.* control dentifrice. Error bars show standard error of mean (SEM).

D. Sulcus Bleeding Index

Mean Baseline mSBI measured 2.55 for the test group, and 2.44 for the control group.After 3 months, mSBI was significantly lower in the test (2.24) *vs.* the control (2.32) group (p=0.0032). This trend continued at the 6-month time point, when mSBI measured 2.10 in the test group *vs.* 2.27 in the control group (p=0.0004)(Table 1 and Figure 3).

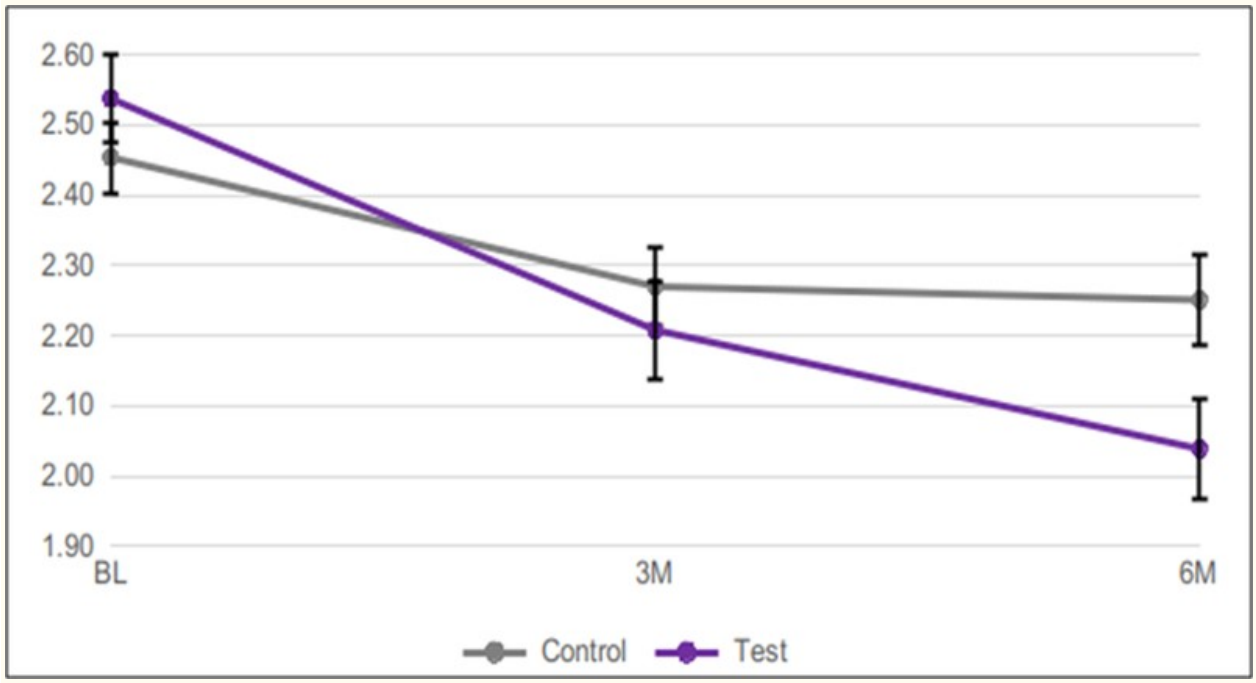

Figure 3:

Mean mSBI over 6 months using test*vs.* control dentifrice. Error bars show standard error of mean (SEM).

E. Periodontal Pocket Probing Depths

1) All periodontal pockets measurements

Mean Baseline pocket probing depths measured 2.49 for the test group, and 2.56 for the control group.After 3 months, probing depths were significantly lower in the test (2.28)*vs.* the control (2.47) group (p=0.0140) This trend continued at the 6-month time point, when mean probing depths measured 2.17 in the test group*vs.* 2.40 in the control group (p=0.0108)(Table 1 and Figure 4).

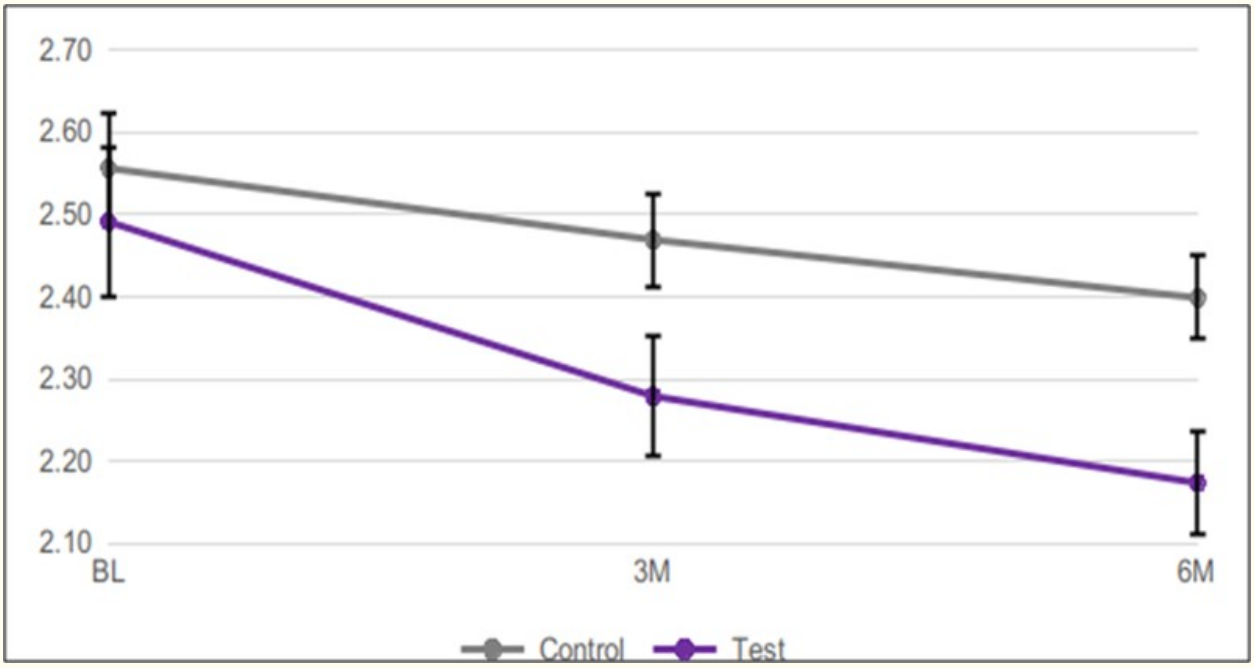

Figure 4:

All periodontal pockets: mean probing depths in mm over 6 months using test*vs.* control dentifrice. Error bars show standard error of mean (SEM).

2) Periodontal pockets with baseline measurement >4mm

Mean Baseline pocket probing depths measured 4.22 for the test group, and 4.23 for the control group.After 3 months, probing depths were significantly lower in the test (3.13)*vs.* the control (3.45) group (p=0.0142) This trend continued at the 6-month time point, when mean

probing depths measured 3.04 in the test group*vs.* 3.34 in the control group (p=0.0142)(Figure 5).

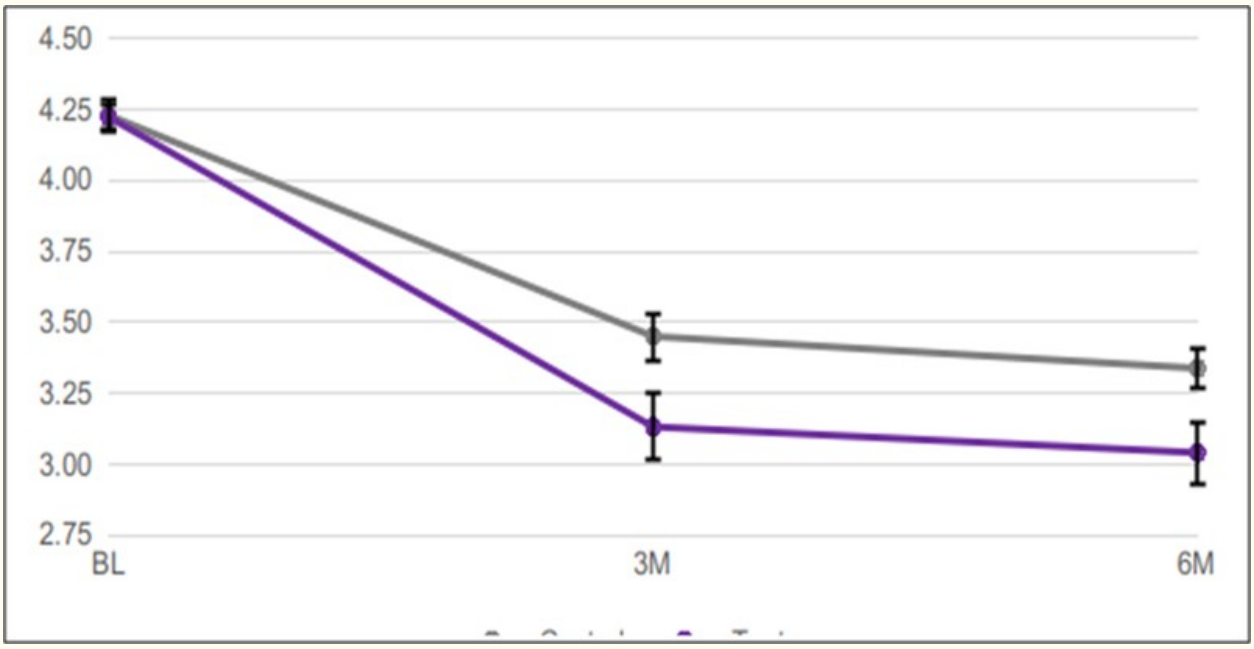

Figure 5:

periodontal pockets >4mm: mean probing depths in mm over 6 months using test*vs.* control dentifrice. Error bars show standard error of mean (SEM).

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Discussion

This study is one in a series of projects to evaluate the effects of a novel formulation of dental gel that contains 2.6% edathamil on oral biofilm and periodontal health. Previous studies have demonstrated effective plaque removal and reduced overnight plaque reaccumulation after one-time tooth brushing with the test dental gel[20–24].Additionally, several clinical studies reported that the use of the test gel was associated with lower plaque levels and gingival inflammation as compared to a positive control dentifrice [20–24].In a previous study [21] using a novel in vivo imaging approach, investigators applied multiphoton microscopy and digital imaging techniques to quantify the effects of the test *vs.* control

gel on dental plaque. They observed considerably reduced biofilm presence, cohesion and adhesion to the tooth surface after 3 weeks of brushing with the test gel*vs.* a control dentifrice. Moreover, in the subjects using the test gel, the remaining plaque evidenced a fragmented dental biofilm structure, with no apparent changes in the underlying pellicle. Subjects using the control dentifrice also demonstrated reduced plaque levels, but biofilm removal was less extensive with regard to plaque volume, continuity, and surface area. Clinical indices were documented in the same study. They paralleled the imaging results in that the clinical indices at the study end-point were also significantly lower in the test group versus the control group.

Previous clinical and imaging studies that demonstrated effective plaque removal and improved gingival health provided the impetus for the current study, raising the question whether the documented short-term effects of the test gel in patients with gingivitis would translate into benefits for patients with mild-to-moderate periodontitis.This study demonstrated that, over a period of 6 months, clinical indices for gingival health as well as periodontal pocket probing depths improved significantly more in subjects using the test gel than in the group using the control gel.

In summary, this study demonstrated that, over a period of 6 months, brushing with test gel twice daily resulted in significantly better gingival health and periodontal probing depths than a control dentifrice. For all variables measured, the differences between test and control dentifrice were significant at 3 months and at 6 months. Further studies are required that include greater patient numbers over longer periods of time.

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Conclusion

A test dental gel more effectively reduced gingival inflammation and bleeding, as well as periodontal pocket probing depths than a control dentifrice. Next steps include more extensive studies with larger numbers of patients and longer study durations in subjects with diverse levels of periodontal health to permit more comprehensive evaluation and understanding of the short- mid- and long-term effects of the test product.

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New Published Study Finds an Innovative Toothpaste May Be the First To Show Significant Improvements In Patients Suffering From Gum Disease affecting 65 Million Americans

As Scientists Link COVID-19 to Gum Disease, the Study Shows LivFresh Toothpaste Significantly Reduces Gum Bleeding, Gum Inflammation, and Gum Pocket Depths in Patients with Periodontitis, the Most Severe Form of Gum Disease

SAN FRANCISCO, Calif. (PRWEB) February 18, 2021 -- With recent research indicating a possible link between inflammatory gum disease and COVID-19 respiratory complications and data showing that dental care is the most neglected of all healthcare spending since the pandemic started, today, Livionex, Inc., a Silicon Valley life sciences company released the results of a groundbreaking new study, published in The Journal of Periodontology. This is the first controlled study to show a toothpaste demonstrating measurable improvements in patients with periodontitis, a disease that affects more than 65-million Americans today (almost half of Americans adults over 30 years of age).

Periodontitis, the most severe form of gum disease, has been connected to tooth loss, heart disease, Alzheimer's, diabetes, and some cancers. Recently, several studies have reported that that those with chronic gum disease are more likely to experience severe, potentially life-threatening complications if they contract COVID-19. Gum disease may also play a role in what is now being referred to as 'Long Covid' affecting nearly a third of Covid patients who are not fully recovering, and are still experiencing symptoms weeks after their diagnosis, among them periodontal problems, loose teeth, and tooth loss.

While toothpaste has been proven to treat early gum disease, known as gingivitis, it has never been found to be a clinically significant addition in the management of periodontitis. The study is the first in the dental industry to report that brushing with a toothpaste, produced clinically significant improvements in patients with periodontitis.

"LivFresh represents a groundbreaking therapy in the treatment of periodontal disease. This is the first randomized double-blind clinical study for a toothpaste to report statistically and clinically significant reductions in gingival bleeding and pocket depths, which are markers for periodontal disease," said Dr. Petra Wilder-Smith, a leading US expert in the study oral medicine and Professor and Head of Dentistry at the Beckman Laser Institute, UC Irvine.

"The management of periodontitis requires effective daily plaque control by the patient. This remains a challenge for most patients. The LivFresh study results show that periodontitis patients can achieve significant benefits of better oral health, without changing their daily brushing habits," commented Dr. Nicolaas Geurs, Professor and Chair, Department of Periodontology, University of Alabama at Birmingham School of Dentistry.

The six-month long, double-blind study, conducted at the Beckman Laser Institute at UC Irvine, compared how two toothpastes affected periodontal pocket depths, gingival inflammation, and gum bleeding in patients with periodontitis in maintenance care. The findings revealed that subjects who brushed with Livionex's LivFresh toothpaste saw statistically significant improvements in their symptoms versus the group that brushed with Crest Pro Health, an FDA-approved anti-plaque, anti-gingivitis toothpaste.

The group that brushed with LivFresh dental gel showed that 80% of their diseased pockets depths improved. Diseased Pocket Depths are greater than or equal to 4 mm. The group that brushed with LivFresh without any dental procedures, showed an average improvement of 1.16 mm in pocket depths. This is similar to the reported average improvement observed with Scaling and Root Planning (SRP) when used with FDA approved locally delivered antibacterial drugs. Additionally, when compared to the group using the control toothpaste, subjects who brushed with LivFresh saw 2.5 times less gum inflammation and 1.9 times less gum bleeding.

“LivFresh study results indicate a big step forward in the arena of patient/professional co-treatment of inflammation-based periodontitis. LivFresh can become a new and significant addition to the clinical control and management of periodontal disease,” said Dr. Charles Cobb, Professor Emeritus at the University of Missouri at Kansas City’s Department of Periodontics.

Unique from conventional toothpastes that rely on cleaning with detergents and abrasives, LivFresh uses ‘activated edathamil’ in a patented formulation that works at the molecular level by essentially breaking the bond between the bacterial biofilm and teeth, interfering with the ability of the plaque to stick to teeth. The result is close to a professional cleaning every time you brush. Since dental plaque is the root cause of gum disease, the technology also shows remarkable reductions in pocket depths, gum inflammation and bleeding symptoms associated with gum disease.

“The new study is the sixth in a series of double-blind university studies that have been conducted since 2014 showing LivFresh toothpaste outperforms other toothpastes in people with gum inflammation and bleeding. The breakthrough study was conducted on 65 individuals with periodontitis,” said Dr. Maninder Kaur, Assistant Professor, Department of Periodontology, University of Alabama at Birmingham School of Dentistry.

“LivFresh has shown results that indicate significant reduction of gingival inflammation, bleeding and pocket depths when used for daily brushing. LivFresh has the potential to become an adjunct for current periodontal procedures and become the toothpaste of choice for periodontal patients which is half the adult population worldwide,” said Periodontist Dr. Joan Otomo-Corgel, the past president of the American Academy of Periodontology.

“The results of this study are extremely promising and take us one step closer to becoming the first toothpaste to aid in the treatment of periodontitis. During this pandemic, this becomes especially relevant as more than a third of Covid cases continue to suffer from long term gum disease even after recovering from the virus,” said Amit Goswamy, CEO, Livionex Inc.

About LIVIONEX
Livionex Inc. was founded in 2009 by Stanford and Berkeley alums with the goal of enhancing the quality and longevity of human life. Headquartered in Los Gatos, CA, Livionex develops novel therapies for a variety of age-related diseases affecting billions of people worldwide. The Company’s products are based on its proprietary technology that modulates metal ions that cause oxidative stress and disease. The Company is introducing a new category of treatment for various disorders and diseases associated with metalo lipid protein aggregates, inflammation, and/or bacterial biofilms across ophthalmology, dermatology, and oral care. The first products to market are three LivFresh dental gels and a whitening kit that address the needs of those with sensitive teeth. LivFresh Dental Gel (formerly known as Livionex Dental Gel) is currently available on-line and in dental offices across the country. LivFresh is used by thousands of dentists. The technology underlying

LivFresh has been validated by numerous sources, including dental professionals, the U.S. Department of Defense, and the US National Institutes of Health. More can be found at www.GetLivFresh.com

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Clean Bite™ I

A revolution in oral hygiene

Clean Bite™ I
The World's Most Advanced Single Use Toothbrush!
U.S. Patent 8,292,624

- Shaped like a mouthpiece, Clean Bite™ I is a single-use toothbrush with 800± bristles lining the upper and lower bite channels, and as well the underside of the palate arch
- While chewing for a utility period of 60 to 90 seconds, Clean Bite™ I will brush the teeth, gingival margin, and the tongue then dissolves and can be fully ingested or disposed
- Each bite channel has two reservoirs above and below the horizontal centerline, which burst on compression, distributing dentifrice equally throughout the channels
- **Through collaboration, Clean Bite, LLC and Livionex, Inc., have coupled their IP, providing LivFresh as the dentifrice of choice, sighting documented studies showing 250% greater plaque removal than the leading brand of toothpaste**
- **June 2021 LivFresh was awarded the EU's "CE Mark" as the only OTC Dental Tooth Gel (toothpaste) for the prevention and treatment of gingivitis and periodontitis**
- Bristles on the vertical walls are set at 45° to the gum line, providing perfectly positioned bristles to brush the teeth and gums, as recommended by the ADA
- The frontal port enables breathing if the user is congested
- Clean Bite™ I is made of gelatin and other GRAS materials and is a foodstuff
- **NB: Clean Bite™ I when fully consumed, can serve as a delivery system for vitamins, nutrients, medications, vaccines, and other API in developing countries, et al**
- Water-soluble and biodegradable
- Can be made in different flavors and sizes for both adults and children
- 24 times the surface contact area in comparison to the traditional brushes
- The design and material formulation of Clean Bite™ I are Patented and Trademarked in the USA; Livionex's has five registered patents and four registered trademarks
- The primary market in the USA is "at-risk children" who receive free or reduced-cost meals at school and are 3x's more likely to have untreated caries (10+ billion USDA sponsored meals/yr.)
- Other Markets: Military, Disaster relief, Travelers, Hospitals, Prisons, Managed Care Facilities, NGO's, Foundations providing support to Developing Nations, et al.

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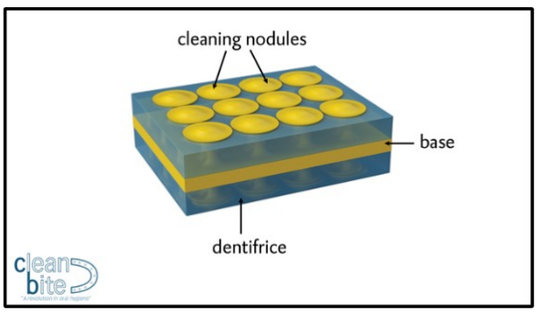
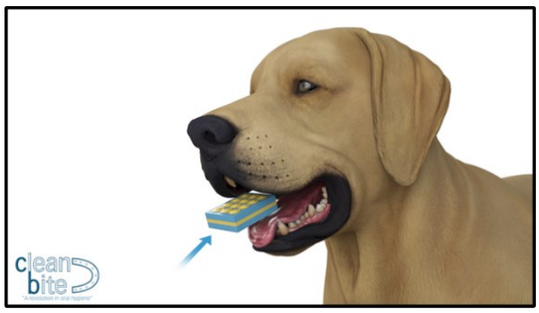
File date: 09212021

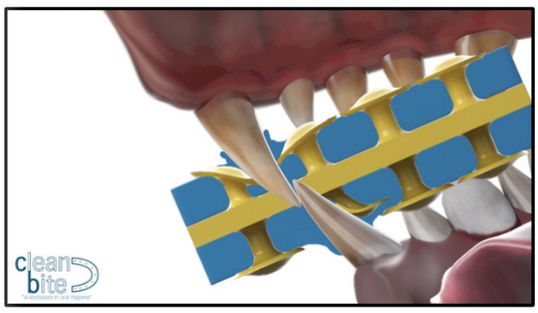
“Clean Bite™ II” and “Clean Bite™ II Interact”



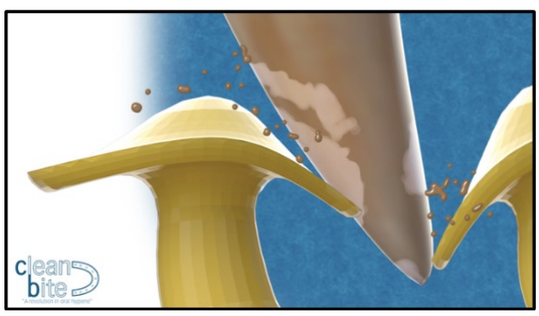
The structural body of Clean Bite™ II is displayed in yellow. It comprises a core pad providing a monolithic connection to a multitude of upper and lower mushroom-shaped bristles. Dependent on the specific application, the bristles may have a variation in patterns and shapes. LivFresh Dental Gel, by Livionex, Inc., is blue and fills the structural core throughout the bristle pattern to immerse the exposed surfaces of the pet’s teeth while masticating.



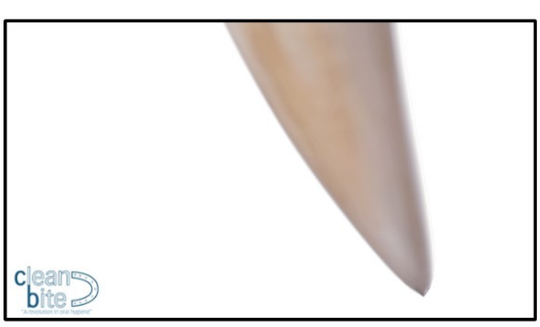
Clean Bite™ II comes in an appropriate bite-size treat to meet the particular pet’s needs according to its weight. This treat has various flavoring to the liking of the pet’s species, and the patented material used to form the core pad and bristles is a gelatin foodstuff that, along with the LivFresh dentifrice, is soluble and fully ingested. The second version of Clean Bite™ II is “Clean Bite™ II Interact” with the same designed structure, larger in size, non-soluble, and built to hold up under a playful tug-of-war for deep cleaning of the pet’s full bite.



As the pet bites down on Clean Bite™ II, it causes both the cap and its supporting column to deflect the mushroom-shaped bristles. As the teeth deflect the bristles and penetrate the monolithic pad, the brim on the circumference of the cap, which is inverted, gently brushes LivFresh dentifrice across the surface of the teeth. This motion activates LivFresh, causing the adhesive that enables the plaque to adhere to the tooth surface to break down.



Plaque removal is accomplished without using any abrasive aggregate or detergents, nor is there a need for fractured shards to scrape the tooth’s surface. Continuing to chew Clean Bite™ II causes LivFresh to disperse throughout the pet’s mouth, working to remove plaque while freshening the pet’s breath. Simultaneously, the structural portion of Clean Bite™ II begins to dissolve and liquefy and then swallowed as intended.



The frequency of use for Clean Bite™ II or “Clean Bite™ II Interact” is best determined by the pet’s owner, but should not exceed as directed on the packaging or as recommended by your Veterinarian. Keeping the pet’s teeth clean will contribute to good oral hygiene and overall better health of your best friend.

Patent Filed in the USA, EU, and India

clean bite

“A revolution in oral hygiene”

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Collaboration between Clean Bite, LLC, and Livionex, Inc.

Creating a Broad Range of Oral Hygiene and Delivery Systems for API using Patents, issued, and pending, domestic and internationally

LivFresh Dental by Livionex
May 19 ·
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"With millions of Americans under 'stay at home orders' and unable to visit their dentists for regular checkups, the former President of the American Dental Association (ADA), Dr. Carol Summerhays, offers these dental care tips of what to do and what not to do right now:

Implement an effective brushing technique. People should be brushing for two minutes morning and night with a soft bristle toothbrush with the brush at a 45o angle to the teeth.

Pick the right toothpaste. Stay away from much hyped charcoal products. New toothpastes are touting charcoal as a whitener and cleaner. Charcoal is an abrasive and if used improperly can hurt tooth enamel and cause teeth to become sensitive.

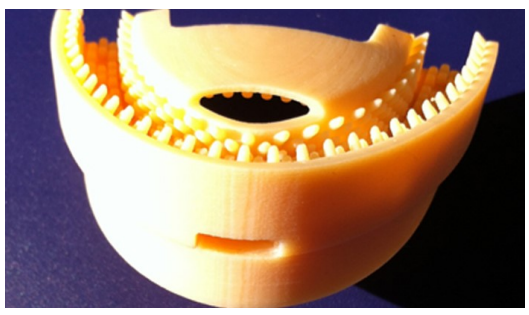
For those people suffering from plaque buildup and gum bleeding Dr. Summerhays suggests brushing with LIVFRESH Dental Gel, which she personally uses. Clinical studies indicate that LIVFRESH reduces plaque, the root cause of gum disease, up to 250% better than conventional toothpaste."

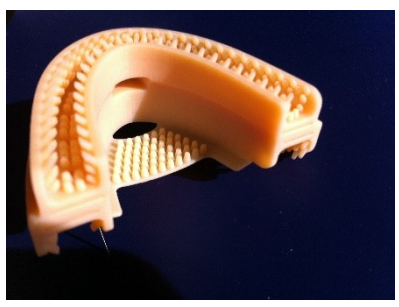
Source: https://markets.businessinsider.com/news/stocks/leading-dental-expert-warns-that-managing-oral-health-at-home-is-critical-for-overall-health-1029214907

The link for the study on Livionex's "LivFresh" done by UC Irvine at the Beckman Laser Institute and Medical Clinic: https://www.youtube.com/watch?v=FQj1GQ0TA9c&list=PLy8fFPJjn1Ito0suQ4CL69vQCjK3Dblzr

There are going to be six initial products that I am going to focus on, with the pet product (Clean Bite™ II) being first, along with (Clean Bite™ III) for people with special needs as well as young children (ages 4 to 6 – head start program). The equipment development for Clean Bite™ I will take longer by about six months. Clean Bite, LLC will to begin an equity funding campaign within the next two months.

- **Clean Bite™ I** - the original patent shaped like a mouthpiece in a fully soluble, and ingestible along with an **insoluble** (2 types)



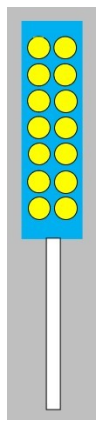


- **Clean Bite™ II** - patent pending for pets, primarily (targeted) dogs and cats, fully soluble, and ingestible along with an **insoluble** (2 types)

- **Clean Bite™ III** - patent pending for people with special needs (sensory, e.g., autistic), also to be used by children four years and older, fully soluble, and ingestible along with an **insoluble** (2 types)

(Inspiration)

ARK's MEGA Brick Stick® Chew **+** **BeBeBats®** **=** **Clean Bite™ III**



N.B: Neither, Ark Therapeutics nor BeBeBats® are owned or affiliated with Clean Bite, LLC, and these products are shown only for illustration. All Registered trademarks are the property of the respective owners.

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Clean Bite™ Product Line Global Reach	**Clean Bite™ Patented or Patent Pending and Registrations**	**LivFresh Patents and Registrations, et al**	**Livfresh for removal of plaque**	**Livfresh for Prevention & Treatment of Gingivitis & Periodontitis**	**LivFresh Usage for Children ages 4 to 6, and people with special needs**	**LivFresh Usage: for Companion Pets**
Clean Bite™I Gel			✓	✓		
Clean Bite™I Non-Gel			✓	✓		
Clean Bite™II Gel			✓	✓		✓
Clean Bite™II Non-Gel			✓	✓		✓
Clean Bite™III Gel			✓	✓	✓	
Clean Bite™III Non-Gel			✓	✓	✓	
United States of America	✓	✓	✓	✓	✓	✓
Mexico	**USMCA**	**USMCA**	✓	✓	✓	✓
Canada	**USMCA**	**USMCA**	✓	✓	✓	✓
European Union	✓	✓	✓	✓	✓	✓
India	✓	✓	✓	✓	✓	✓
United Kingdom*			✓	✓	✓	✓
Africa *			✓	✓	✓	✓
South America			✓	✓	✓	✓







May have recognition of CE Mark *