Luminec
Animal Sciences

INVESTOR PRESENTATION

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SAFE HARBOR

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ABOUT US

OUR GLOBAL MISSION: TO PROVIDE TRANSFORMATIONAL HEALING PRODUCTS AND SERVICES THAT ARE ***SAFE***, ***EFFECTIVE*** AND ***AFFORDABLE*** TO ANIMALS.

AT A GLANCE:

- SINCE 2009
- INNOVATIVE & PROPRIETARY IP: FDA GRAS, RETAIL, OTC & RX
- 900 ANIMAL CASE REPORTS OF TRIAMINO, TAFA400, SK-713
- 1,200 ANIMAL CASES OF CRO-50 AND X-2
- OVER 40 PRODUCTS / APPLICATIONS
- WATER SOLUBLE NANOTECH CBD, CBG, CBN

THREE CORE PEPTIDE BIOTECHNOLOGIES: TRIAMINO, TAFA400, SK-713

CRO-50 RIBONUCLEASE AND X-2 COCARBOXYLASE / THIAMINE PYROPHOSPHATE

IRT-360: IMMUNE SYSTEM; WATER SOLUBLE NANOTECH CBD, CBG, CBN

MANUFACTURING, DISTRIBUTION PARTNERSHIPS

WORLD CLASS MANAGEMENT TEAM, BOARD AND ADVISORS

GLOBAL ANIMAL & PET CARE INDUSTRY

THE ANIMAL & PET CARE INDUSTRY IS LARGE AND GROWING RAPIDLY; HOWEVER, ANIMALS ARE GETTING SICKER AND WE ARE UNDER-PREPARED IN RESPONSE…THE ECONOMIC IMPACT IS ENORMOUS.

Massive Economic Impact*

$269 Billion
GLOBAL PET CARE INDUSTRY (‘25)

$91 Billion
U.S. PET INDUSTRY (’18)

$70 Billion
GLOBAL ANIMAL HEALTH CARE (‘26)

$21 Billion
GLOBAL VET. RX INDUSTRY (‘22)

$522 Million
GLOBAL HEMP-DERIVED PET SUPPLIES (‘22)

Inefficiencies in Animal & Pet Care

- High Toxicity
- Side Effects

- Increase in Chronic Diseases in pets
- 90% increase in Cat obesity
- Cats and Dogs experiencing increase in arthritis

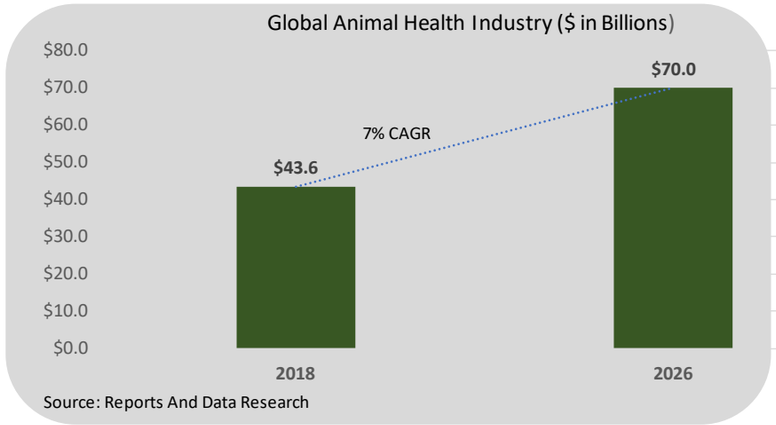
- Over-the-counter products are expensive
- Prescription drugs are cost prohibitive

- Testing
- Approvals

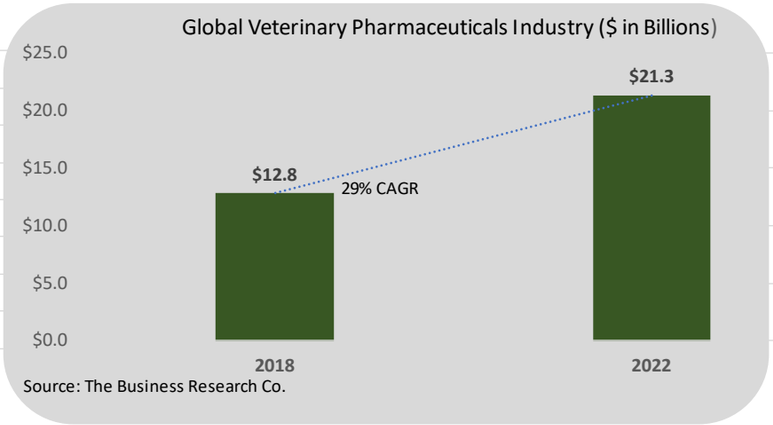
* Source references available upon request.

MARKET OPPORTUNITY

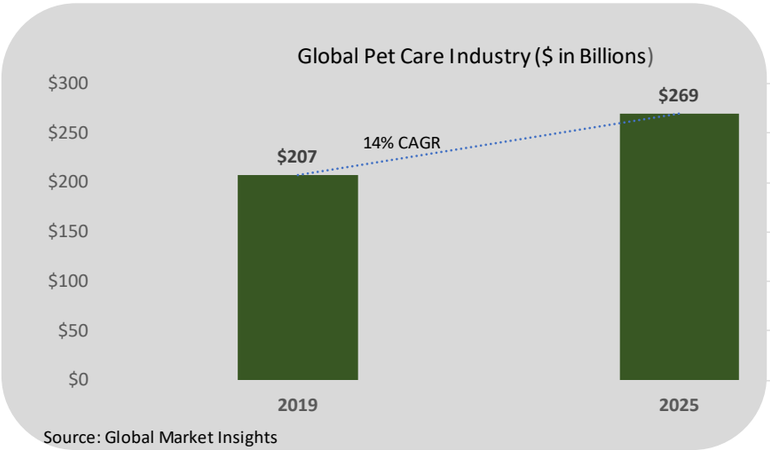
DOGS AND CAT OWNERSHIP IS OVER 150 MILLION IN THE U.S.
FOOD IS THE LARGEST EXPENSE CATEGORY, FOLLOWED BY SUPPLIES, VET. CARE AND GROOMING.



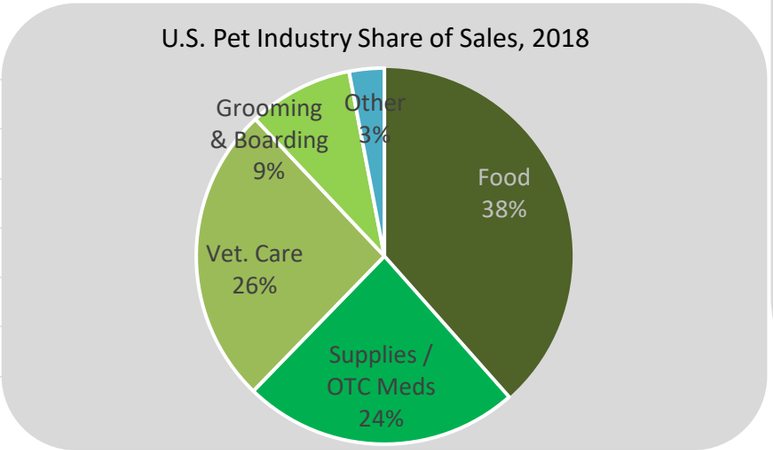
Source: Reports And Data Research

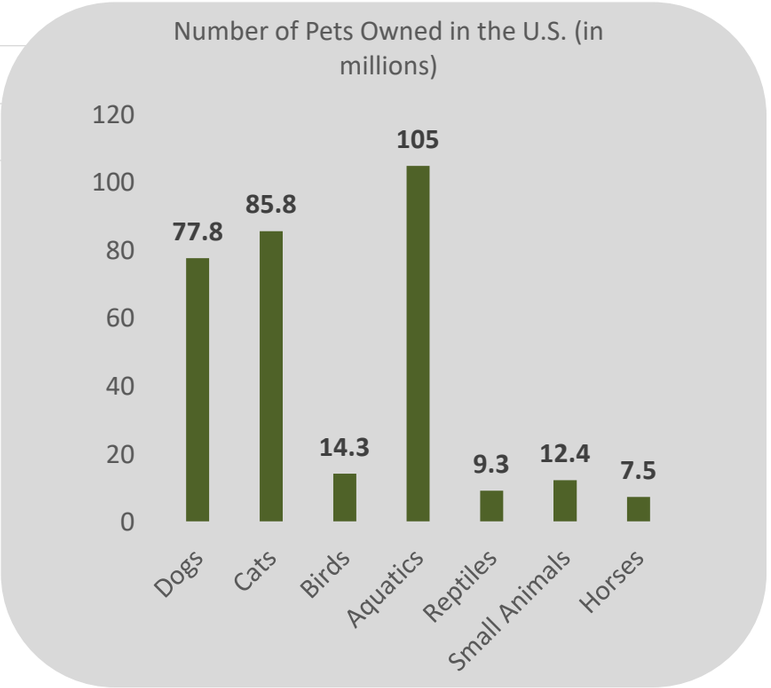


Source: The Business Research Co.



Source: Global Market Insights

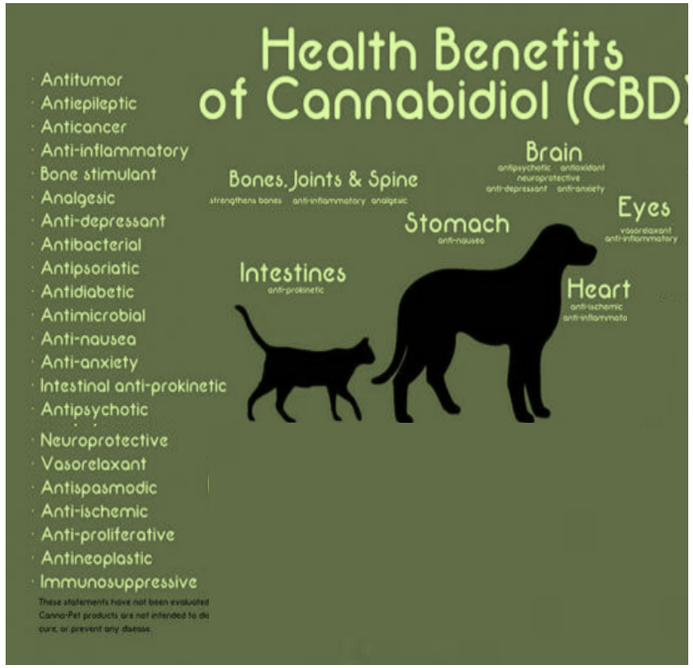


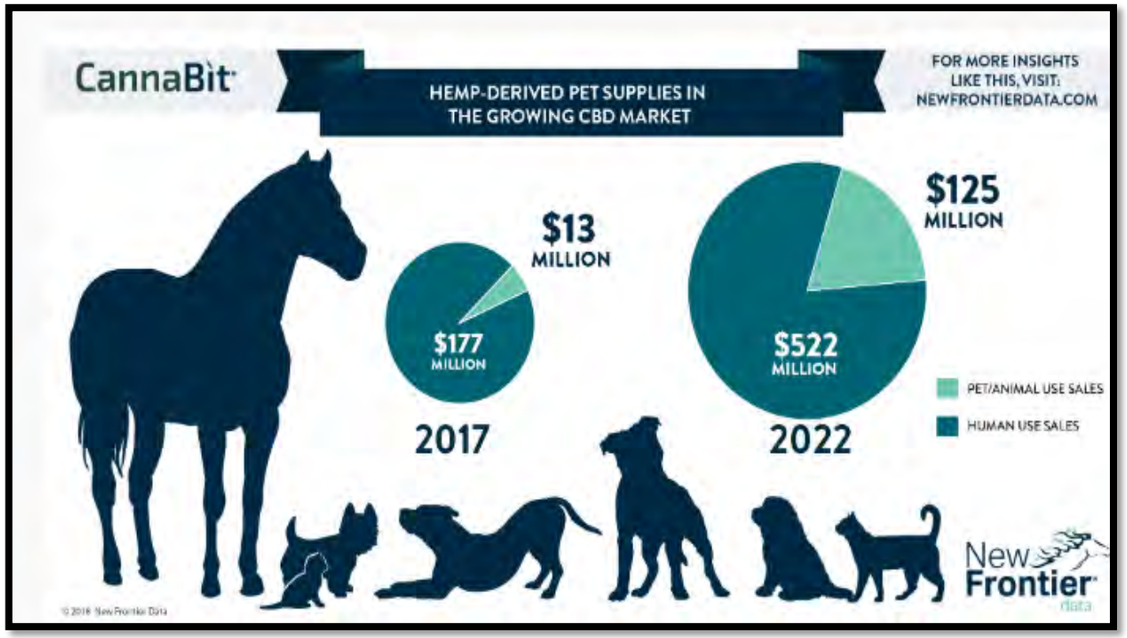


Sources Available upon request.

CBD CHARACTERISTICS IN ANIMALS

CBD CAN HAVE TREMENDOUS BENEFITS ON ANIMALS.





Cats & Dogs need CBDs too!!

- 100% Natural
- Veterinarian approved
- Organic & Non-GMO
- Locally Sourced
- Legal in 50 states
- 0% THC
- Bacon Flavored
- Memory & Awareness
- Regulates appetite
- Motor skills & Learning Coordination
- Blood pressure
- Heart Rate
- Anxiety/Depression

Sources Available upon request.

LUMINEC'S RESPONSE TO THE VETERINARY CHALLENGE

Veterinary Market Challenge

People want to offer their pets the proven therapeutic elements of CBD

- Pets are easily accessible, active, affectionate, and are natural objects of human attachments
- Pets, particularly cats and dogs, have an endocannabinoid system
- **Dogs and cats can benefit from CBD medications**
- CBD in pets can treat behavior-based disorders, IBS, feline immunodeficiency, pain management, nausea; CBD can act as an appetite stimulant
- Alternative pet medications are difficult to administer and slow to take effect

Our Veterinary Proprietary Solution

Proprietary CBD Delivery Systems for Veterinary Applications

optimal drug delivery system in animals

- CBD can deliver systemically and locally acting medication
- Suppositories allow for rapid and efficient delivery of active medical compounds
- Drugs are administered to the animal while it is conscious, with rapid delivery and maximized drug efficiency

SK-713

Clinically tested cutting-edge delivery technology

- Composed of charged delivery spheres that encapsulate and transport active compounds into the system.
- Can enhance the permeation and retention of these compounds and may be utilized for both oral and topical ingredients.
- Subject of several published studies and book chapters and is unique in its ability to improve not only absorption of enveloped ingredients, but also enhance surrounding tissue metabolism, thereby creating and an extremely novel and potent synergy.
- Can transport very large molecules across surface membranes, can transport a suite of complementary ingredients simultaneously, and is also able to extend the duration of activity of transported compounds

COMPETITIVE ADVANTAGES

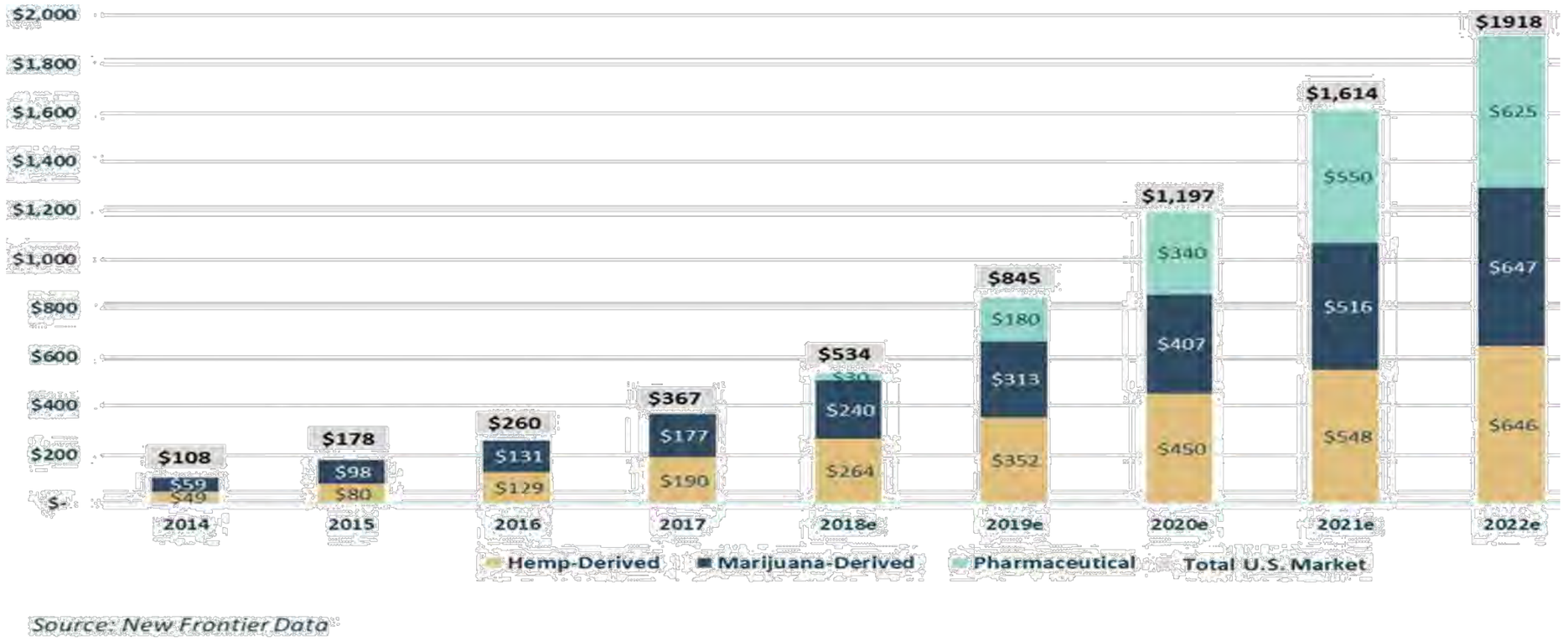
ADDITIONAL MARKET OPPORTUNITY DRIVERS.

TARGETING CRITICAL DISEASES AND ILLNESSES. PEPTIDE TECHNOLOGY IS ALTERNATIVE TO RX.

1. **ALL PRODUCTS ARE BASED ON OUR TRIAMINO & TAFA400 MOLECULES AND SK-713 DELIVERY TECHNOLOGY.**
2. **OUR PRODUCTS ARE "ONE-OF-A-KIND" – THEY DO NOT MASK AN ANIMAL'S HEALTH CONDITIONS.**
3. **OUR TECHNOLOGIES IDENTIFY DEFECTIVE, DISEASED CELLS; STABILIZE THESE CELLS, AND RETURN THEM BACK TO THEIR ORIGINAL DNA.**
4. **OUR PRODUCTS ARE ALL-NATURAL & NON-TOXIC.**
5. **NO CHEMICALS OR ANTIBIOTICS.**
6. **FDA RECOGNIZED AS SAFE (FDA GRAS). ZERO SIDE EFFECTS.**
7. **THERE ARE NO OTHER PRODUCTS ON THE MARKET THAT CAN EFFECTIVELY TREAT OR COMPETE WITH ANY OF OUR PRODUCTS.**
8. **NO VIRUS, FUNGUS, OR PARASITE CAN FORM ANY IMMUNITY TO OUR TRIAMINO & TAFA400 MOLECULES.**

CBD MARKET OPPORTUNITY

U.S. CBD market will grow from $367 million in 2017 to $1.9 billion in 2022

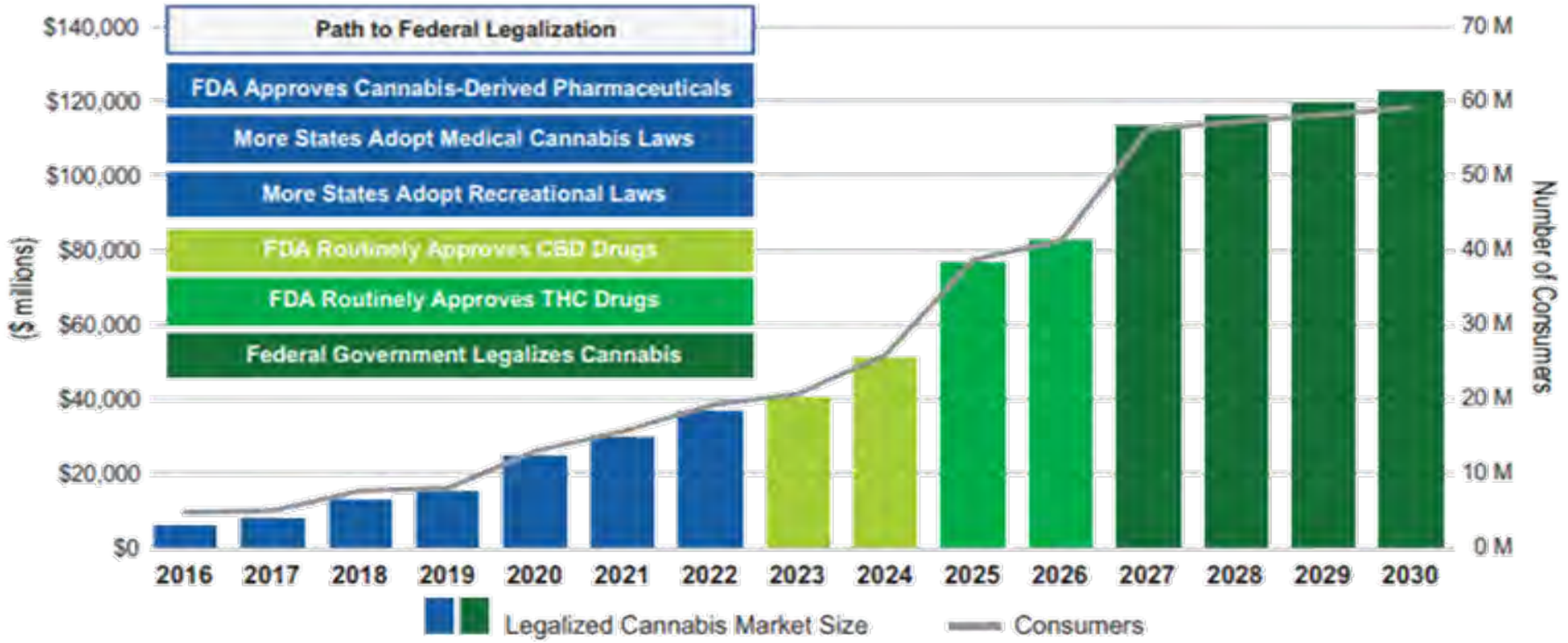


Source: New Frontier Data

Sources Available upon request.

CBD MARKET OPPORTUNITY

U.S. Legalized Cannabis Market to Explode with Federal Legalization



Source: Ackrell Capital. Assumes cannabis will be legalized federally by 2027. Cannabis may never be legalized federally in the United States.

Sources Available upon request.

COMPETITIVE ADVANTAGES

ADDITIONAL MARKET OPPORTUNITY DRIVERS.
TARGETING CRITICAL DISEASES AND ILLNESSES.

How / Where can I afford to get medical or wellness treatment?

Retail & OTC Products & Services

- FDA GRAS status
- Peptide technology is alternative to Rx
- 10+ animal products; CRO-50 & X-2 for Animal Market
- Track Record 900 Animal Triamino/TAFA400 w/SK-713
- State-of-the-art medical and wellness clinic with GE Healthcare endorsement

How do I get Prescription Drugs that are affordable, effective and safe?

Pharmaceuticals

- Proprietary technologies
- Patents pending
- CRO-50 and X-2; 1, 1200 Animals
- Robust potential drug(s) pipeline
- Most pervasive and critical diseases
- Animal and human testing licenses and capabilities

- The revolutionary products included in our original 5-year projected $90M U.S. sales plan were developed by the Mike Dillon Media Company.
- We are now developing new products to enable us to reach a projected $100M sales level in 5-years
- Sales are based on the “Low Hanging Fruit” categories that will give us the “Biggest Bang for our Bucks.”

BROAD SET OF ANIMAL HEALTH PRODUCTS

TAFA400 WITH SK-713 SHAMPOO.

- Provides a soft, pristine and healthy coat.
- Contains no caustic agents that destroy the oils on the skin.
- Effective in relieving allergy conditions.
- Proven effective in treating chronic alopecia.
- Restores coat / hair back to its original DNA.
- All of our shampoos and conditioners are crossover candidates like Mane ‘n Tail.

BROAD SET OF ANIMAL HEALTH PRODUCTS

OVER 40 NUTRACEUTICAL, COSMETICS / SKINCARE & BEAUTY SUPPLEMENTS AVAILABLE FOR DISTRIBUTION.

BROAD SET OF ANIMAL HEALTH PRODUCTS

TREATMENT ON DAISY

DAISY BEFORE TREATMENT

DAISY AFTER TREATMENT

COMPELLING PRODUCTS

TAFA400 SHAMPOOS & CONDITIONERS.

Free Amino Ion Theory – by Steven R. Schutt.
Amino acids combine with nucleic acids within the nuclei sequentially so that the unstable nuclei within the cells become aligned, thereby restoring stability.

TAFA400 w/SK-713 MEDICATED & DERMAL SHAMPOO

Effective treatment for itching, inflammation, abrasions and hot spots for all animals

- Treatment costs of prescription tablets for dogs ranges up to $10 per day!
- Side effects of these prescription tablets can cause diarrhea, vomiting, and anorexia.
- Relief from itching can last from 7 days to 4 weeks.
- Our shampoo eliminates the itching in dogs and other animals.
- Our shampoo combined with our Triamino & TAFA400 Liquids stops itching in 2 – 3 days with no side effects!

TAFA400 w/SK-713 ULTRA CONDITIONER

- Restores moisture & nourishes hair.
- Contains an ultra conditioning agent for dry, unruly, frizzy coats.
- Enhances body, shine and luster.
- Provides an overall protection for the coat.

TAFA400 w/SK-713 DETANGLER CONDITIONER

- Softens and restores the coat.
- Achieves an easy snarl-free comb-out.
- 100% natural ingredients.
- All shampoos & conditioners will be packaged in sizes for household use, pet salons. and large animals.
- Our goal is to dominate the entire pet salon industry with our shampoos & conditioners!

COMPELLING PRODUCTS

WOUND CARE. IMMUNE SYSTEM. HOT SPOTS. HAIR GROWTH STIMULANT.

WOUND CARE

- Effective wound treatment for all animals. Will be available in both spray and ointment applications.
- Rapidly stops bleeding, and protects serious wounds from bacterial infection.
- Suppresses scarring caused by surgical wound or jagged or irregular type lacerations.
- Stimulates the regrowth of hair to restore the animal's coat to its original appearance.

TAFA400 w/SK-713 LIQUID

- Anti-immune booster used as a water additive or administered orally.
- Increases appetite, energy level and hydration.
- Stops itching in a few days in both dogs and cats.
- Stimulates coat regrowth back to original DNA.
- Can be used in all pet salons as a water additive while dogs are placed in kennels. This will keep them hydrated and provide immunity from contracting airborne viruses such as kennel cough & parvo.
- Can be added to the drinking water of small animals and birds to prevent virus and fungus diseases.

TAFA400 w/SK-713 HOT SPRAY

- Same benefits as our TAFA400 w/SK-713 Liquid. Used externally.
- Spray-on skin disorder relief for all animals.
- Effective treatment for hot spots and itching.
- Effective for disorders of birds' feathers and mites.

TRIAMINO LIQUID w/SK-713

- Promotes a stress-free immune system.
- Used as a water additive or administered orally.
- Can be used as a daily health maintenance supplement.
- Provides quick relief from severe itching
- Promotes healing and stimulates hair growth.
- To be used on all small and large animals.
- Incorporated in Daisy's treatment program.

NEW APPLICATIONS OF PRODUCT

MITIGATING FLEAS, TICKS.

TAFA400 w/SK-713

FLEA & TICK SHAMPOO

- Eliminates or repels fleas and ticks
- 100% Natural

TAFA400 w/SK-713

FLY & MOSQUITO SHAMPOO

- Also marketed for equine, cattle and other farm animals
- Can be used as a spray for repelling or eliminating fleas, ticks, flies and mosquitos.
- 100% Natural

TAFA400 w/SK-713 SPRAY

CAT FLEA & TICK PROTECTION

- Cats are not normally bathed; both the spray and liquid versions are effective on cats
- Cats tend to self-groom; optimizes their overall health

DR. NICKERSON'S MASTITIS TEST

- Mastitis & Udder Edema is caused by bacterial infection.
- 44.2M cattle worldwide are infected every year.
- Cost to U.S. Dairy Farmers is $2 Billion in lost production.
- Dr. Nickerson's tests found that our TAFA400 was a successful and effective treatment for eliminating Mastitis & Udder Edema from Dairy Cows. Cows treated with our product returned to production in 12-24 hours vs. 36-96 hours for cows treated with antibiotics. This would dramatically reduce losses.
- Zero antibiotics in dairy cows equals zero antibiotics in milk for humans!

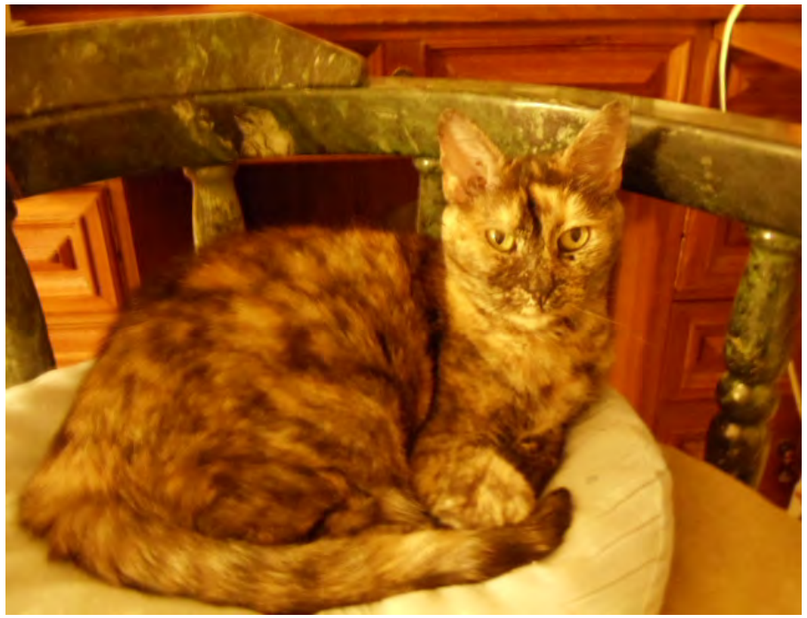
CASE STUDY

GINGER, A VERY SPECIAL CAT

Diagnosis: Anemia

Treatment: Triamino

Result: Blood count returned to normal in 28 days



- Starting in October 2011, Ginger started exhibiting very severe symptoms, throwing up twice a day and occasionally vomiting white foam. Her appetite dropped considerably
- Examined by Dr. Kenneth Skinner at Prescott Animal Hospital. X-rays were taken along with blood tests.
- Her X-rays showed a thickening of the intestinal wall. The vet thought Ginger probably had lymphoma of the intestine. She was severely anemic with a blood count of 17, whereas a healthy cat normally has a blood count ranging between 34 and 35.2.
- We began administering 1 cc of Triamino in the morning and the same dose in the evening. We had to administer it to her using a syringe and shooting it into her open mouth. Each time she would spit part of it out by shaking her head back and forth, so we began giving her 1-1/2 cc each time to make sure she received the right amount.
- The results from Triamino were immediate. After just one week she was holding her head and tail upright again while prancing around the house. By the second week she was once again running up the stairs.
- By December 27th, which was 28 days since the steroid shot had been given to her, we returned for a visit with Dr. Skinner. Ginger was once again X-rayed and blood tests run. Her blood test results showed a blood count of 35 and the X-rays revealed a shrinking of the affected area and a thinning of the intestinal wall in the area where it had been thick before.
- Dr. Skinner was astonished at Ginger's improvement, and moreover, he stressed that during his entire career as a veterinarian he had never seen any animal recover from lymphoma or the anemia it caused.

Sources Available upon request.

SMALL & LARGE ANIMAL THERAPIES / PRODUCTS

Sources Available upon request.

MANUFACTURING & DISTRIBUTION

DOMESTIC AND INTERNATIONAL MANUFACTURING AND DISTRIBUTION CHANNEL ESTABLISHED.
TURNKEY WITH ALL LICENSES AND PERMITS TO MANUFACTURE AND DISTRIBUTE HUMAN & ANIMAL RETAIL / OTC.

MederiLab / Invett:

- Veterinary pharmaceutical manufacturer
- Licenses for manufacturing animal products
- Distribution network
- NDA signed; Pricing and terms to come
- Partnership for licenses and permits to manufacture human products
- Sales force of 1,200 people

Luminec / SolubleTech:

Company has secured an agreement in principle to partner with SolubleTech for its manufacturing capabilities in cannabinoids and other products.

MederiLab™ Invett

Calle Puerto Yavaros 2751, Miramar, 45060 Zapopan, Jal., Mexico

Manufacturing & Distribution of Animal Products. Human Product Capabilities to come.

Luminec
A PRIVATE HOLDING COMPANY

2261 Cosmos Court, Carlsbad, CA 92011

Interim Manufacturing of Cannabinoid-based Products and Other Capabilities.

MEXICO

U.S.A

Sources Available upon request.

PEPTIDE COMPOUNDING, MANUFACTURING, & DISTRIBUTION

Tailor Made Compounding:
A leading compounding manufacturer and distributor of OTC medicines based on peptides (nutraceuticals, supplements) with a network over 500 clinics worldwide.

Highlights:

- 45 state and territory licenses
- HPLC and Mass Spectrometer
- Sterile facility
- Pharmaceutical Non-Sterile Preparations – USP 795
- Pharmaceutical Sterile Preparations – USP 797
- Proprietary transdermal bases for the BHRT, HCG, and pain management applications
- Raw ingredients are accompanied with certificates of analysis. They are quarantined, tested and must achieve an assay greater than 98% prior to use

Background Info: Since 2015.

Leadership: Ryan Smith (Cofounder and VP), Jeremy Delk (Cofounder and VP)

200 Moore Drive
Nicholasville, KY 40356 U.S.A.
Australia • Dubai

U.S.A

Sources Available upon request.

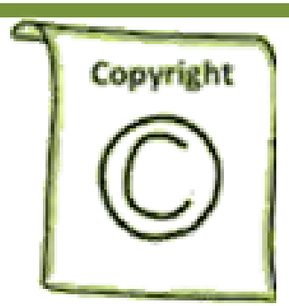
IN SUMMATION…

1. Our current and future products will disrupt the entire U.S. pet and animal industries
2. All of our products are rooted in science
3. Our products are 100% natural and non-toxic
4. No fungus, virus or parasite can form any immunity to our products
5. Our company's mission is to help wipe out infectious disease from the planet
6. Our products support our mission!

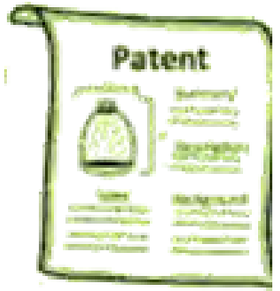
APPENDIX

SIGNIFICANT INTELLECTUAL PROPERTY

PATENTS, TRADEMARKS, & COPYRIGHT.



Triamino™: Patent Pending, Trademark	Triamino Fulvate™ (TAFA400): Patent Pending, Trademark	Lithium Fulvate™ : Patent Pending, Trademark



SK-713™ : Patent Pending, Trademark	CHD-FA™: Trademark	Intellisomes™: Trademark

Water Soluble Nanotech CBD/ CBG/CNB Isolate / Tinctures Technology	Solutions for: Acute Radiation Syndrome, Blood Sepsis, Inflammation, Cancer and Metabolism Hans Selye Institute (CRO-50™, X-2™): 60k+ Human and Animal Case Studies	40 Branded Products 2,400+ Human and Animal Case Studies Process and Operational Trade Secrets IRT-360

Sources Available upon request.

TESTING COMMON CORE IP

SCIENTIFIC *IN VITRO* DATA INDICATES THAT TRIAMINO™ w/SK-713™ AND TAFA400™ w/SK-713™ CAN BE ANTI-METASTATIC DRUGS THAT CAN INHIBIT BREAST CANCER AND PROSTATE CANCER CELL MIGRATION.

Testing Triamino™ w/SK-713™ and TAFA400™ w/SK-713™

Anti-Cancer Properties

BTS RESEARCH

Anti-Cancer Activity of TriAmino/SK713 and TAFA400/SK713

Cancer is defined as a group of diseases of unregulated cell proliferation and is the leading cause of death worldwide. It is characterized by the rapid generation of undifferentiated cells that grows outside their natural boundaries, and which can also invade adjacent or distant tissues or organs of the body (metastasis). The current standards for anticancer drug development required candidate compounds to be evaluated by testing their in vitro potency against molecular targets relevant to carcinogenesis and their effect on cultured cancer cells. To test the potential anti-cancer activity of TriAmino/SK713 and TAFA400/SK713 /SK713 cytotoxicity and migration assays were carried out at BTS research.

Cytotoxicity

Cytotoxicity was tested in human breast (MCF-7, Cat # HTB-22), liver (HepG2, Cat # H8-8065) and prostate (PC3, Cat# CRL-1435) cancer cell lines purchased from American Type Tissue Culture Collection (ATCC) and cultured as recommended by vendor.

1. MCF-7 (Breast cancer cell line)

Method

Cell-titer Glo Kit (Promega, Cat # G7570) was used to assay cell viability. Briefly, cancer cells were cultured on June 03, 2019 with different dilutions (1/100,000, 1/50,000, 1/10,000, 1/5,000, 1/1,000, 1/500, 1/100, 1/50, 1/10 and 1/5) of test articles (SK713, TriAmino/SK713 and TAFA400/SK713 for 72 hours. On June 06, 2019, Cell-titer Glo reagent was added and luminescent absorbance was read at a spectrophotometer (Molecular Device, SpecTraMax i3x). The mean luminescence/OD data from 3 replicates for each treatment group was calculated, and percent cell viability was then calculated as follows:

Cell Viability Treatment= Mean OD Treatment– Mean OD Blank

%Cell Viability Treatment= 100 X Cell Viability Treatment / Cell Viability Untreated

Results

SK713 did not decreased cell survival at any dilutions tested when compared to untreated group (Figures 1A Red). TriAmino/SK713 and TAFA400/SK713 dramatically drop MCF-7 cell survival rate (Figures 1A, Blue (TriAmino/SK713) and Green (TAFA400/SK713). The calculated doses for 50% cell viability (IC50) in MCF-7 were 1/95 and 1/81 dilutions for TriAmino/SK713 (Figure 1B) and TAFA400/SK713 (Figure 1C).

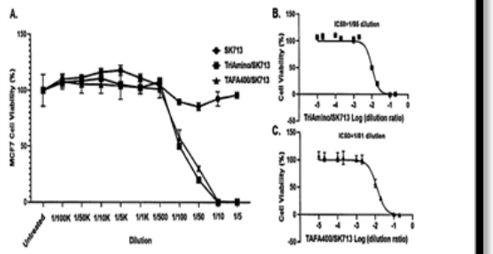


Figure 1. Cytotoxic Activity of TriAmino/SK713 and TAFA400/SK713 in MCF-7 Brest Cancer Cell Line. Cancer cells were cultured with different dilutions (1/100,000, 1/50,000, 1/10,000, 1/5,000, 1/1,000, 1/500, 1/100, 1/50, 1/10 and 1/5) of test articles (SK713, TriAmino/SK713 and TAFA400/SK713) for 72 hours and cell survival rate (cell viability) was detected by Cell-titer Glo kit (A). Calculated doses for 50% cell viability (IC50) for TriAmino/SK713 (B) and TAFA400/SK713 (C).

2. HepG2 (Liver cancer cell line)

Method

Same as MCF-7 study.

Results

Similar results to MCF-7. SK713 did not decreased HepG2 cell survival at any dilutions tested when compared to untreated group (Figures 2A Red). TriAmino/SK713 and TAFA400/SK713 dramatically drop MCF-7 cell survival rate (Figures 2A, Blue (TriAmino/SK713) and Green

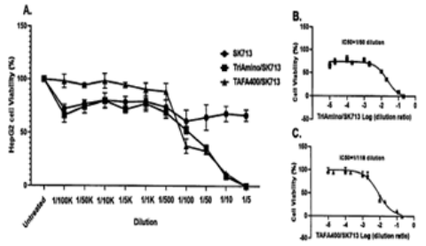


Figure 2. Cytotoxic Activity of TriAmino/SK713 and TAFA400/SK713 in HepG2 Liver Cancer Cell Line. Cancer cells were cultured with different dilutions (1/100,000, 1/50,000, 1/10,000, 1/5,000, 1/1,000, 1/500, 1/100, 1/50, 1/10 and 1/5) of test articles (SK713, Tri-Amino and TAFA400) for 72 hours and cell survival rate (cell viability) was detected by Cell-titer Glo kit (A). Calculated doses for 50% cell viability (IC50) for Tri-Amino (B) and TAFA400 (C).

(TAFA400/SK713) with IC50 in 1/95 and 1/81 dilutions for TriAmino/SK713 (Figure 2B) and TAFA400/SK713 (Figure 2C).

3. PC3 (Prostate cancer cell line)

Method

MTT (Sigma, Cat#M5655) assay was used to assay cell viability. Briefly, cancer cells were cultured on July 09, 2019 with different dilutions (1/1,000, 1/500, 1/100, 1/80, 1/50, 1/20, 1/10 and 1/5) of test articles (TriAmino/SK713 and TAFA400/SK713) for 72 hours. On July 12, 2019, MTT reagent was added and OD590 absorbance was read at a spectrophotometer (Molecular Device, SpecTraMax i3x). The mean OD data from 3 replicates for each treatment group was calculated, and percent cell viability was then calculated as follows:

Cell Viability Treatment= Mean OD Treatment– Mean OD Blank

%Cell Viability Treatment= 100 X Cell Viability Treatment / Cell Viability Untreated

Results

TriAmino/SK713 and TAFA400/SK713 dramatically drop PC3 cell survival rate (Figures 3A, Blue (TriAmino/SK713) and Green (TAFA400/SK713) with IC50 in 1/95 and 1/81 dilutions for TriAmino/SK713 (Figure 3B) and TAFA400/SK713 (Figure 3C).

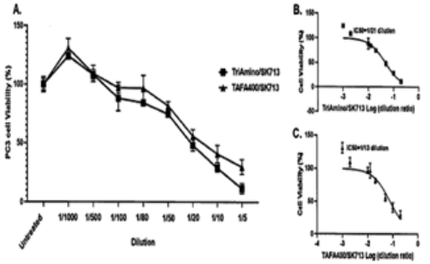


Figure 3. Cytotoxic Activity of TriAmino/SK713 and TAFA400/SK713 in PC3 Prostate Cancer Cell Line. Cancer cells were cultured with different dilutions (1/1,000, 1/500, 1/100, 1/80, 1/50, 1/20, 1/10 and 1/5) of test articles (Tri-Amino and TAFA400) for 72 hours and cell survival rate (cell viability) was detected by MTTassay (A). Calculated doses for 50% cell viability (IC50) for Tri-Amino (B) and TAFA400 (C).

4. Conclusion

These scientific in vitro evidences suggest that TriAmino/SK713 and TAFA400/SK713 can potentially be anti-cancer drugs for Breast, liver and Prostate cancer.

Migration/Invasion

Method

Migration was tested in human breast (MCF-7, Cat # HTB-22) and prostate (PC3, Cat# CRL-1435) cancer cell lines purchased from American Type Tissue Culture Collection (ATCC) and cultured as recommended by vendor. Transwell (Costar, Cat#3422) with 8.0 µm pore size member was used to assay cell migration. Briefly, cancer cells were cultured on June 24, 2019 with 1/50 dilution of test articles, TriAmino/SK713 and TAFA400/SK713 for 24 hours. On June 25, 2019, the cells migrated to other side of member were fixed, stained and counted.

Results

TriAmino/SK713 and TAFA400/SK713 at 1 to 50 dilution inhibited 20% and 30% of cell migration in MCF-7 (Figure 4A) and 46% and 32% of cell migration in PC3 cells.

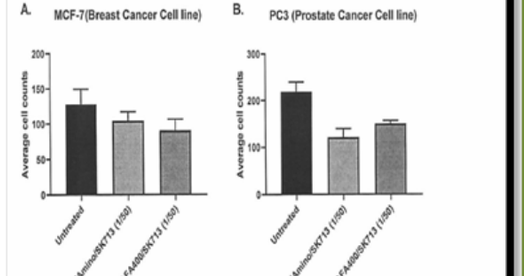


Figure 4. Migration of Breast (MCF-7, A) and Prostate (PC3, B) Cancer Cell Migration. Cells were cultured in a transwell with medium only (untreated), TriAmino/SK713 (1/50 dilution) or TAFA400/SK713 (1/50 dilution for 24 hours. The cells migrated to other side of membrane were fixed, stained and counted.

Conclusion

These scientific in vitro data indicated that TriAmino/SK713 and TAFA400/SK713 can inhibit breast can and prostate cancer cells migration. TriAmino/SK713 and TAFA400/SK713 could potentially be anti-metastatic drugs for Breast and Prostate cancer.

REPORT SIGNATURE

Tareq Abu-Nadi, BSc.
Chief Operating Officer, BTS Research and Luminec Pharmaceuticals

09 Sep 2019
Date

Sources Available upon request.

CANNABINOIDS TESTS ARE COMPELLING

FIRST AND ONLY WATER-SOLUBLE NANOTECH CANNABINOIDS.
CBD ISO 99.9%. CBD NANO WSP 4%.

BTS RESEARCH — Luminec Pharmaceuticals

Certificate of Analysis For CBD ISO 99.9%

Test	Result
Total CBD	99.95%
Total Cannabinoids[1]	99.95%
Total THC	Not Detectible
Total Terpenes[2]	0.00 mg/g
Residual Solvents[3]	Not Detectible
Microbials[4]	Not Detectible
Mycotoxins[5]	Not Detectible
Pesticides	Not Detectible
Heavy Metals[6]	Not Detectible
Foreign Matter	Not Detectible

[1]Cannabinoids tested were: THCα, Δ9-THC, Δ8-THC, THCV, CBDα, CBD, CBDV, CBN, CBGα, CBG, CBC.
[2]Terpene Tested: α-Bisabolol, α-Humilene, α-Pinene, α-Terpinene, β-Caryophyllene, β-Myrcene, β-Ocimene, β-Pinene, Camphene, Caryophyllene Oxide, cis-Nerlidol, δ-3-Carene, δ-Limonene, Eucalyptol, γ-Terpinene, Geraniol, Linalool, Ocimene, (-)-Guaiol, (-)-Isopulegol, p-Cymene, Terpinolene, trans-Nerolidol
[3]Residual Solvent Analysis: 1,2-Dichloro-Ethane, Benzene, Chloroform, Ethylene Oxide, Methylene-Chloride, Trichloroethene, Acetone, Acetonitrile, Butane, Ethanol, Ethyl-Acetate, Ethyl-Ether, Heptane, n-Hexane, Isopropanol, Methanol, Pentane, Propane, Toluene, Xylenes
[4]Microbial Screening: shiga toxin-producing E. coli, Salmonella SPP
[5]Mycotixins tested: B1, B2, G1, G2, Ochratoxin A, Total Aflatoxins
[6]Heavy Metal Screening: Arsenic, Cadmium, Lead, Mercury

Authorized Signature for Testing Approval:

Name: Tareq Abu-Nadi
Title: Chief Operating Officer
Date: 29 May 2019

BTS RESEARCH — Luminec Pharmaceuticals

Certificate of Analysis For CBD Nano WSP 4%

Test	Result
Total CBD	3.87%
Total Cannabinoids[1]	3.87%
Total THC	Not Detectible
Total Terpenes[2]	0.00 mg/g
Residual Solvents[3]	Not Detectible
Microbials[4]	Not Detectible
Mycotoxins[5]	Not Detectible
Pesticides	Not Detectible
Heavy Metals[6]	Not Detectible
Foreign Matter	Not Detectible

[1]Cannabinoids tested were: THCα, Δ9-THC, Δ8-THC, THCV, CBDα, CBD, CBDV, CBN, CBGα, CBG, CBC.
[2]Terpene Tested: α-Bisabolol, α-Humilene, α-Pinene, α-Terpinene, β-Caryophyllene, β-Myrcene, β-Ocimene, β-Pinene, Camphene, Caryophyllene Oxide, cis-Nerlidol, δ-3-Carene, δ-Limonene, Eucalyptol, γ-Terpinene, Geraniol, Linalool, Ocimene, (-)-Guaiol, (-)-Isopulegol, p-Cymene, Terpinolene, trans-Nerolidol
[3]Residual Solvent Analysis: 1,2-Dichloro-Ethane, Benzene, Chloroform, Ethylene Oxide, Methylene-Chloride, Trichloroethene, Acetone, Acetonitrile, Butane, Ethanol, Ethyl-Acetate, Ethyl-Ether, Heptane, n-Hexane, Isopropanol, Methanol, Pentane, Propane, Toluene, Xylenes
[4]Microbial Screening: shiga toxin-producing E. coli, Salmonella SPP
[5]Mycotixins tested: B1, B2, G1, G2, Ochratoxin A, Total Aflatoxins
[6]Heavy Metal Screening: Arsenic, Cadmium, Lead, Mercury

Authorized Signature for Testing Approval:

Name: Tareq Abu-Nadi
Title: Chief Operating Officer
Date: 29 May 2019

CANNABINOIDS BENEFITS:

	CBD	CBG	CBN
Relieves pain Analgensic	●		●
Suppresses appetite/Helps with weight loss Anorectic			
Kills or slows bacteria growth Antibacterial	●	●	
Reduces blood sugar levels Anti-diabetic	●		
Reduces vomiting and nausea Anti-emetic	●		
Reduces seizures and convulsion Anti-epileptic	●		
Treats fungal infection Antifungal			
Reduces inflammation Anti-inflammatory	●	●	
Aids sleep Anti-insomnia			●
Reduces risk of artery blockage Anti-ischemic	●		
Inhibits cell growth in tumors/cancer cells Anti-proliferative	●	●	
Treats psoriasis Anti-psoriatic	●		
Tranquilizing, used to manage psychosis Antipsychotic	●		
Suppresses muscle spasms Antispasmodic	●		●
Relieves anxiety Anxiolitic	●		
Simulates appetite Appetite Stimulant			
Promotes bone growth Bone Stimulant	●	●	
Reduces function in the immune system Immunosuppressive	●		
Reduces contractions in the small intestines Intestinal Anti-prokinetic	●		
Protects nervous system degeneration Neuroprotective	●		

Sources Available upon request.

TESTS ARE COMPELLING

FULVIC ACID INACTIVATES ALL VIRAL ACTIVITY.

PATIENTS TREATED WITH CR-50 TESTING SHOWED RESISTANCE TO NEGATIVE EFFECTS OF RADIATION.

University of Pretoria

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0001

11/12/2006

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RESULTS REPORT FORM

ASSAY PERFORMED: The anti-viral effect of fulvic acid derivatives FA#96 and on Herpes Simplex virus type 1 in cell culture.

DATES OF ASSAY PERFORMANCE: 28/11/2006 - 30/11/2006

SCIENTIST/TECHNOLOGIST: Marianne Wolfaardt

MATERIALS AND METHODS

Compounds

A 4% (w/v) aqueous suspension of fulvic acid derivatives, kept at 4°C

Cell cultures

Standard cell techniques were used. MEM supplemented with 5% FCS and containing penicillin and streptomycin was used for propagation of the cells. Cultures were incubated at 37°C in 5% CO2 air humidified atmosphere.

Virus stock

A stock suspension of Herplex Simplex Virus Type 1 was titrated in serum-free medium to reach the correct concentration.

Antiviral Assay

Fifty microlitres of a 4% FA was added to 50 µl of a 100 $TCID_{50}$ and 1 $TCID_{50}$ virus concentration and incubated for ten minutes at RT. Dilutions of this combination was then made starting at 1/5 dilution and 10-fold dilutions after that (1/5, 1/50; 1/500; 1/5000 and 1/50 000). Hundred microlitres of each of these dilutions was then combined with 100µl of Vero cells at a concentration of 1 X 10^5. The final dilutions of the FA compound were then 1/10; 1/100; 1/1000; 1/10 000 and 1/100 000. Each dilution was assessed in four wells. Virus controls were included and the 50 µl of FA was substituted with 50 µl MEM. The final dilutions were also 1/10; 1/100; 1/1000; 1/10 000 and 1/100 000 of the input concentration. Each virus dilution was also assessed in four wells. The test was read after 48 hours.

Results

Compound: FA #96 (15/09/06)

Inactivation time: 10 minutes, with a 1$TCID_{50}$ of virus

FA dilutions	CPE % (% Viruses counted after 48h)	Virus controls	CPE % (% Viruses counted after 48h)
1/10	Toxic	1/10	<25%
1/100	0	1/100	0
1/1000	0	1/1 000	0
1/10 000	0	1/10 000	0
1/100 000	0	1/100 000	0

Compound: FA #96 (15/09/06)

Inactivation time: 10 minutes, with a 100$TCID_{50}$ of virus

FA dilutions	CPE % (% Viruses counted after 48h)	Virus controls	CPE % (% Viruses counted after 48h)
1/10	Toxic	1/10	100%
1/100	0	1/100	60%
1/1000	0	1/1 000	<25%
1/10 000	0	1/10 000	0
1/100 000	0	1/100 000	0

Interpretation of results

A degree of toxicity was observed in the 1/10 FA dilution wells, but no viral growth was observed in any of these wells. The results indicate that FA inactivates all viral activity when incubated with an equal amount of virus for at least 10 minutes. The two viral concentrations that were inactivated were 100$TCID_{50}$ and 1$TCID_{50}$.

Prof CE Medlen
DEPARTMENT OF PHARMACOLOGY

Stable Thiamine Pyrophosphate Solution (Cocarboxylase) in the Treatment of Diabetes

Prof. Heberto Alcázar Montenegro
Dra. Susana Alcázar Leyva
Dra. Rosa María Rivera Lopez
Instituto de Investigaciones Científicas Hans Selye A.C.
Inscripción No. 88/256 CONACYT, Mexico
Biol. Jorge Moreno Hernández
Universidad Nacional Autónoma de México (UNAM)

Introduction:

- Nucleases are enzymes normally present in all living forms
- It has been proven that in cancer patients the concentration of nucleasesis modified and they show a sharp decrease or eliminated from tumoral cells.
- Patients effected by different forms of cancer were treated with deoxyribonuclease and cocarboxylase in stable solution, in addition to standard cancer therapy.

Results: 75% of patients recovered normal glucose levels

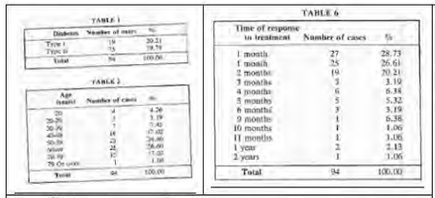


TABLE 1

Diabetes	Number of cases	%
Type I	19	20.21
Type II	75	79.79
Total	94	100.00

TABLE 2

Age (years)	Number of cases	%
20	4	4.26
20-30	5	5.19
30-40	7	7.45
40-50	16	17.02
50-60	23	24.46
60-70	25	26.60
70-80	15	15.95
80 Or over	1	1.06
Total	94	100.00

TABLE 6

Time of response to treatment	Number of cases	%
1 month	27	28.73
1 month	25	26.61
2 months	19	20.21
3 months	3	3.19
4 months	6	6.38
5 months	5	5.32
6 months	3	3.19
9 months	1	6.38
10 months	1	1.06
11 months	1	1.06
1 year	2	2.13
2 years	1	1.06
Total	94	100.00

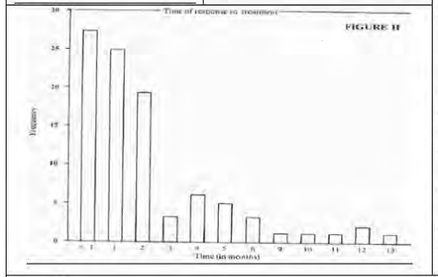


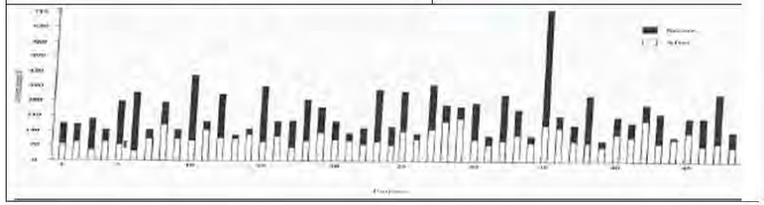
FIGURE II

Materials and Methods:

- 94 diabetic patients, aged 12 – 90 years
- Main symptoms exhibited: asethena, adynamia, polyuria, polyfagia and polydipsia; glycaemia levels were recorded before and after treatment
- Does of TPP was 3 ml intramuscularly daily for 2 weeks, every third day for 2 weeks, three times per week for 1 month, twice per week for the last month
- Patients given a low carbohydrate diet
- Response time to treatment, duration of complaint; discontinuation or reduction of hypoglycaemic substances and/or insulin

Results:

- Response time: 75% of patients recovered normal glucose levels within 2 months
- Two weeks after treatment, all patients were found to be asymptomatic
- Glycaemias returned to normal within at most, 2 years
- Glycaemias levels (mean) before: 90.21
- Glycaemias levels (mean) After: 34.06



Therapeutic perspectives of nucleases in cancer

Prof. Heberto Alcázar Montenegro
Dra. Susana Alcázar Leyva
Dra. Rosa María Rivera López
Dra. María Teresa Benítez Rodríguez
Instituto de Investigaciones Científicas Hans Selye A.C.
Facultad de Ciencias, UNAM

Introduction:

- Nucleases are enzymes normally present in all living forms
- It has been proven that in cancer patients the concentration of nucleasesis modified and they show a sharp decrease or eliminated from tumoral cells.
- Patients effected by different forms of cancer were treated with deoxyribonuclease and cocarboxylase in stable solution, in addition to standard cancer therapy.

Results: 68% of patients has a favorable response.

Cancer type:	Total No. of cases:	Response to treatment: Remission	*Time	Partial	Time	Negative	Time
Ovarian cancer	4	3	3 to 24	---	---	1	24
Breast cancer	6	4	13 to 36	---	---	2	1
Uterine cancer	3	2	15	---	---	1	1
Hepatic cancer	4	1	5	---	---	3	1
Colon cancer	1	---	---	---	---	1	6
Gastric cancer	1	---	---	---	---	1	4
Bone cancer	1	---	---	---	---	1	4
Melanoma	3	3	6 to 18				
Leukemia	5	5	13 to 66				
Lymphoma	6	6	4 to 60				
Miosarcoma	2	1	6	---	---	1	2
Tyroma	1	---	---	---	---	1	5
Epidermoid cancer	1	---	---	1	36		
Astrocytoma	1	1	0				
Cancer in paranasal sinus	1	1	36				

*Time is given in months.

P: U.A.R. A: 61 D: Chronic granulocytic leukemia			P.G.S. 12 Chronic granulocytic leukemia	
DL:	Before	After:	Before:	After:
Hb:	9.8 g/dl	14.2 g/dl	12.0 g/dl	13.7 g/dl
Hc:	33.2%	41.9%	36.9%	42.2%
Er:	3600 000/ul	4950 000/ul	4200 000/ul	4400 000/ul
Le:	1500/mm³	6800/mm³	3200/mm³	5400/mm³
Pl:	166 000/ul	310 000/ul	345 000/ul	330 000/ul
CT:	Oral chemo-therapy	Suspended	Oral chemo-therapy	Continued
S:	Asthenia, adynamia, fever	Asymptomatic, Recovered weight	Weight lost	Asymptomatic Recovered weight

P: patient initials; A: age; D: diagnosis; LD: laboratory data: Before, After treatment based on DNase and TPP; Hb: hemoglobin; Hc: hematocrit; Er: erythrocytes; Le: leucocytes; Pl: platelets; CT: conventional treatment; S: symptomatology

Sources Available upon request.

TESTING COMMON CORE IP

MIXING SK-713 WITH HUMAN IgG HAD POTENTIALLY ENHANCED THE BIOAVAILABILITY OF IgG INTO THE SUBJECT SKIN AND THUS HAS THE POTENTIAL TO ACT AS AN ENHANCER FOR DERMAL DELIVERY OF MACROMOLECULES.

Testing SK-713™ Therapeutic Macromolecules Delivery Systems

REPORT SIGNATURE

Tareq Abu-Nidi, BSc.
Chief Operating Officer, BTS Research and Luminec Pharmaceuticals

19 Sep 2019
Date

BTS RESEARCH

SK713 as a Delivery Systems for Therapeutic Macromolecules

The administration of drugs into the human body is dependent on several factors, including the active substance in question, its pharmacokinetic profile, and the desired location of action. Macromolecules such as immunoglobulins (Ig's) and hormones comprise a growing group of new pharmaceutical products with the potential to treat diseases that heretofore have had no effective therapeutic options. To date, the therapeutic application of these drugs has been limited because they are effective only when administered parenterally.

Pulmonary (inhalers), dermal (directly to the skin) and transdermal (into circulatory system) delivery of macromolecules are promising alternative routes of drug delivery, avoiding pain associated with parenteral administration and degradation issues associated with oral delivery.

SK713 as an Enhancer for Pulmonary Delivery System for Insulin

Pulmonary delivery of drugs is used extensively in the treatment of respiratory diseases such as asthma, chronic obstructive pulmonary disease (COPD), and cystic fibrosis. It had been demonstrated that nebulized human insulin provided blood sugar control comparable to subcutaneous insulin injections. However, it was recognized that the bioavailability of inhaled insulin was significantly lower than that of subcutaneous preparations. The bioavailability of inhaled insulin is in the range of 10% to 46%, with much of the drug being lost within the device or in the oropharynx or upper airways. Thus, improvement on the bioavailability of insulin for is key for a successful delivery system. Experiments were carried out at BTS research to test the potential of SK713 as an agent to improve insulin absorption after intranasal instillation

Method

This Study was conducted at BTS Research between 07 June 2019 to evaluate the potential of SK713 as an enhancer for the absorption of intranasal instillation of insulin

Mice were separate into 4 groups:

Group1 (2 mice): Intraperitoneal (IP) with 2Iu/kg insulin; Group 2 (2 mice): Intranasal SK-713 only; Group 3 (1 mouse): Intranasal insulin (1 IU/mouse) only; Group 4 (2 mice): Intranasal SK-713 and insulin (1 IU/ mouse).

Insulin effect was determined by measuring blood glucose level. Blood glucose level was measured at pre-dose and after dosing of insulin/SK713 for 15, 30, 45, 60, 90 and 120 minutes

Results

1. Blood glucose level dropped as expected in two mice injected IP with insulin (Figure 1, Blue lines).
2. Intranasal delivery of insulin or SK-713 alone (gray lines) did not reduce the blood glucose in mice.
3. Blood glucose of one mouse with intranasal insulin/SK713 (1 IU/ mouse) (Figure 1, Red line) dropped the blood glucose to the same level as in the mice dose IP, (Blue lines).
4. Blood glucose of other mice with intranasal SK-713 and insulin (1 IU/ mouse) (Figure 1, Purple line) did not dropped blood glucose. It may be due to a technical error.

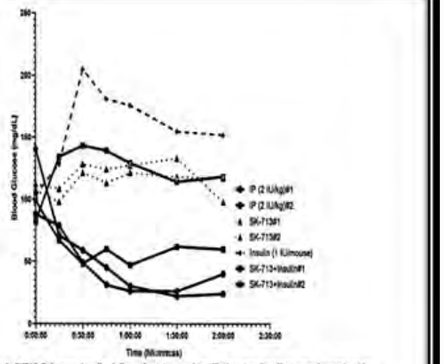


Figure 1. SK713 Enhances Insulin delivery by Intranasal instillation. insulin effect was determined by measuring the blood glucose level at pre-dose and after dosing at 15, 30, 45, 60, 90 and 120 minutes

Conclusion

Results from this preliminary study support the hypothesis that SK713 may act as an agent that improves insulin absorption and may be effective for insulin bioavailability in pulmonary delivery systems

SK713 as a Dermal and/or Transdermal Delivery System for Immunoglobulins

The protective function of skin imposes physicochemical limitations to the type of permeant that can traverse the barrier and different approaches and formulations had been used to circumvent these limitations. At BTS research, preliminary experiments pigs and mice were carried out to test the skin penetration enhancement potential of SK713 to improve bioavailability of immunoglobulins (IgG) in the skin (dermal delivery) and in circulation (transdermal delivery) after topical application of the macromolecule.

1. CD1 Mice Study

Method

This study was conducted on 01 May 2019 – 30 May 2019 at BTS Research in 52 mice to evaluate the potential enhancement of transdermal delivery of human immunoglobulin (hIgG) mice circulation. Briefly, animals were divided in tree groups and dosed intravenously with hIgG 10mg/kg, control group (Group 1, n=4), or with a topical application of 10mg/Kg (Group 2, n=24) or 30mg/Kg IgG/ SK713 (Group 3, n=24). Test article was dosed once at 0 time point. Blood was collected from 4 mice at each timepoint (0.25, 0.5, 1, 4, 8, & 24 hours post dose) via terminal cardiac puncture. Plasma level of hIgG was determined by ELISA kit.

Results

1. In Group 1, plasma levels of hIgG were at the highest level 380,000 ng/mL post IV injection (not shown) at 0.25 hour and the level of hIgG was dropped to 107,000 ng/mL at 24 hours post injection.
2. In Group 2, hIgG was detected in plasma from one mouse at 8 hours after injection at 21 ng/mL and two mice at 24 hours post topical administration at concentrations of 4.7 and 11.4 ng/mL (Figure 2A red dots).
3. In Group 3, hIgG was detected in plasma from 2, 1, 2 and 1 mice at 0.25, 0.5, 1- and 24-hour post topical administration at concentrations ranging from 3 to 7 ng/mL. (Figure 2B)
4. Skin biopsy samples from all animals were analyzed for the presence of hIgG. The results show that a majority of the hIgG dose was trapped in the skin layer with all results over the standard curve of analysis with the high range set at 3 µg/mL. since the numbers were all much higher than the standard curve no graphs are presented below.

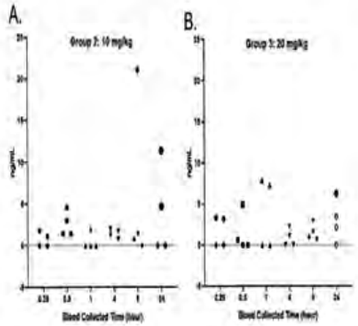


Figure 2. SK713 Enhances Human IgG bioavailability into mice circulation. Circulating concentrations of human IgG in mice treated topically with human IgG/SK713 at 10 mg/kg (Group 2, Figure 2A) and 30 mg/KG (Group 3, Figure 2B)

Conclusion

Mixing of SK713 with human IgG had potentially enhanced the bioavailability of topically applied human IgG into the mice circulation a and thus SK713 has the potential to act as an enhancer for transdermal delivery of macromolecules.

In addition, results confirm that SK-713 was able to deliver the entire dose of hIgG into the mouse skin layer which presents a significant advantage for therapeutics that target skin diseases like Psoriasis, Skin cancer and other skin diseases.

Further studies are being conducted to better evaluate the results seen in this first preliminary study.

2. Yorkshire Pig Study

Method

This study was conducted on 09 May 2019 – 20 May 2019 at BTS Research in two Yorkshire pigs. Briefly, human IgG was mixed 1:1 with SK713 and dosed topically to a final concentration of 10mg/kg to 1 pig, the second pig received an intravenous dose of human IgG at a concentration of 5mg/Kg and was used as a control for transdermal delivery. Blood were collected at 0.25, 0.5, 1, 4, 8, 24, 72, 96, 120 hours post dose & Day 7, 10, 11). Plasma level of human IgG was determined by ELISA kit.

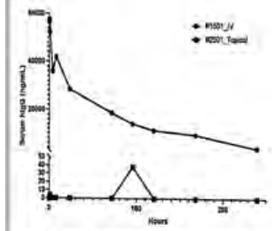


Figure 3. SK713 Enhances Human IgG bioavailability into Pig Skin. Circulating concentrations of human IgG in a pig treated topically with human IgG/SK713 at 10 mg/kg

Results

1. Plasma level of human IgG was at the highest level of 60,000 ng/mL post IV injection for 0.25 hours
2. The level of human IgG was dropped as expected over time (Figure 3, Red line) following the well-known human IgG behavior in circulation after a single I.V injection.
3. Plasma level of human IgG was detected at 96 hours' time point only with value of 78 ng/mL (Figure 3, Blue line) when the pig was dosed topically with a mix of IgG/SK713
4. Most of the IgG is probably on the skin and immunostaining of skin biopsy to confirm results is planned.

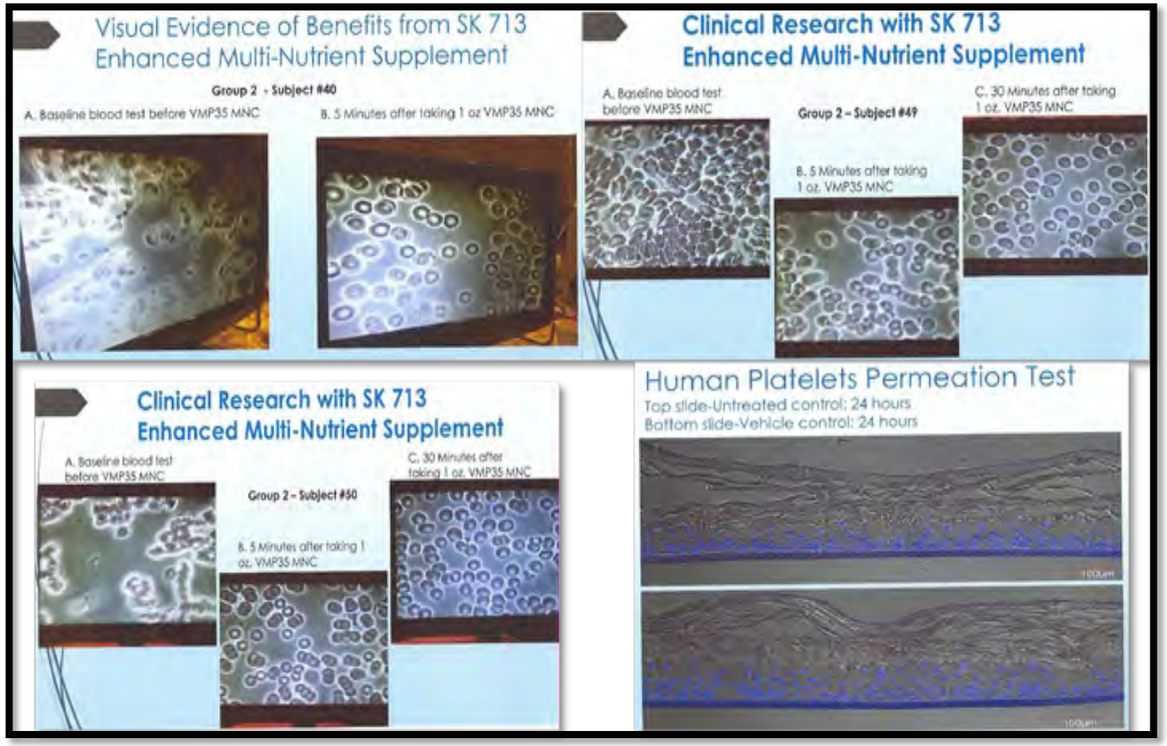
Conclusion

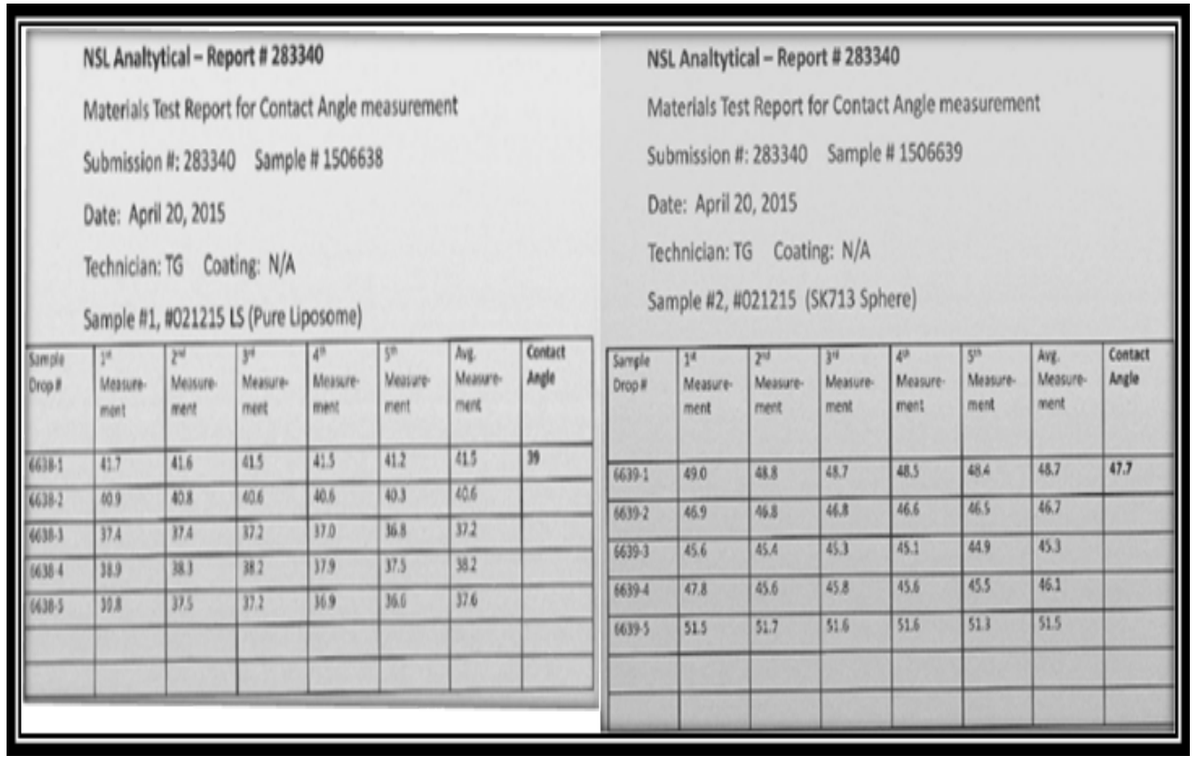
Mixing of SK713 with human IgG has potentially enhanced the bioavailability of IgG into the pig skin and thus SK713 has the potential to act as an enhancer for dermal delivery of macromolecules. Further studies are needed to confirm these results.

Sources Available upon request.

TESTING COMMON CORE IP

INDEPENDENT CLINICAL TESTING SHOWED THAT THE SK-713 SPHERE DEMONSTRATED A HIGHER SURFACE TENSION THAN THAT OF A STANDARD LIPOSOMAL SPHERE MEASURED 47.7 VS. 39 CONTACT ANGLE.





NSL Analytical – Report # 283340

Materials Test Report for Contact Angle measurement

Submission #: 283340 Sample # 1506638

Date: April 20, 2015

Technician: TG Coating: N/A

Sample #1, #021215 LS (Pure Liposome)

Sample Drop #	1st Measure-ment	2nd Measure-ment	3rd Measure-ment	4th Measure-ment	5th Measure-ment	Avg. Measure-ment	Contact Angle
6638-1	41.7	41.6	41.5	41.5	41.2	41.5	39
6638-2	40.9	40.8	40.6	40.6	40.3	40.6	
6638-3	37.4	37.4	37.2	37.0	36.8	37.2	
6638-4	38.9	38.3	38.2	37.9	37.5	38.2	
6638-5	38.8	37.5	37.2	36.9	36.0	37.6	

NSL Analytical – Report # 283340

Materials Test Report for Contact Angle measurement

Submission #: 283340 Sample # 1506639

Date: April 20, 2015

Technician: TG Coating: N/A

Sample #2, #021215 (SK713 Sphere)

Sample Drop #	1st Measure-ment	2nd Measure-ment	3rd Measure-ment	4th Measure-ment	5th Measure-ment	Avg. Measure-ment	Contact Angle
6639-1	49.0	48.8	48.7	48.5	48.4	48.7	47.7
6639-2	46.9	46.8	46.8	46.6	46.5	46.7	
6639-3	45.6	45.4	45.3	45.1	44.9	45.3	
6639-4	47.8	45.6	45.8	45.6	45.5	46.1	
6639-5	51.5	51.7	51.6	51.6	51.3	51.5	

Sources Available upon request.