Creating

the virtual plant

eSense-Lab
A DROP OF NATURE'S ESSENCE

Highly scalable
Diverse applications
Sustainable
Innovative

ESENSE-LAB LIMITED (ASX:ESE)
INVESTOR PRESENTATION | MAY 2019

Disclaimer

This presentation has been prepared by eSense-Lab Limited (eSense). It does not purport to contain all the information that a prospective investor may require in connection with any potential investment in the eSense. You should not treat the contents of this presentation, or any information provided in connection with it, as financial product advice or advice relating to legal, taxation or investment matters.

This presentation and the information contained herein and all electronic and/or hard copy documentation which comprise it are being provided to you solely for your information and may not be copied, reproduced, distributed, disclosed or published, in whole or in part, to any other person for any purpose whatsoever at any time without the prior written consent of eSense. This presentation is not an offer to any person nor is it a prospectus.

eSense has prepared this document based on information available to it at the time of preparation. No representation or warranty (whether express or implied) is made by the ESense or any of their officers, advisers, agents or employees as to the accuracy, completeness or reasonableness of the information, statements, opinions or matters (express or implied) arising out of, contained in or derived from this presentation or provided in connection with it, or any omission from this presentation, nor as to the attainability of any estimates, forecast or projections set out in this presentation.

This presentation is not investment or financial product advice (nor tax, accounting or legal advice) and is not intended to be used for the basis of making an investment decision. The information contained in this presentation has been prepared without taking into account the objectives, financial situation or needs of individuals.

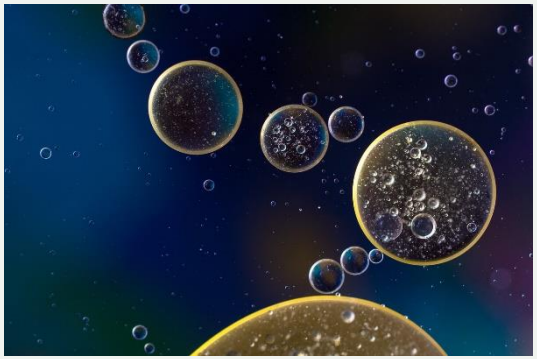
This presentation is provided expressly on the basis that you will carry out your own independent inquiries into the matters contained in the presentation and make your own independent decisions about the affairs, financial position or prospects of eSense. eSense reserve the right to update, amend or supplement the information at any time in their absolute discretion (without incurring any obligation to do so).

Neither eSense, nor their related bodies corporate, officers, their advisers, agents and employees accept any responsibility or liability to you or to any other person or entity arising out of this presentation including pursuant to the general law (whether for negligence, under statute or otherwise), or under the Australian Securities and Investments Commission Act 2001, Corporations Act 2001, competition and any such responsibility or liability is, to the maximum extent permitted by law, expressly disclaimed and excluded.

Nothing in this material should be construed as either an offer to sell or a solicitation of an offer to buy or sell securities. It does not include all available information and should not be used in isolation as a basis to invest in ESense.

This presentation may contain forward looking statements. Forward looking statements include, but are not limited to, statements concerning eSense-Lab's business, future prospects and other statements that are not historical facts. Although eSense believes that its expectations reflected in these forward-looking statements are reasonable as at the date of this presentation, such statements involve risks and uncertainties and no assurance can be given that actual results will be consistent with these forward-looking statements. eSense has no intention to update or revise forward-looking statements, regardless of whether new information, future events or any other factors affect the information contained in this presentation, except where required by law.

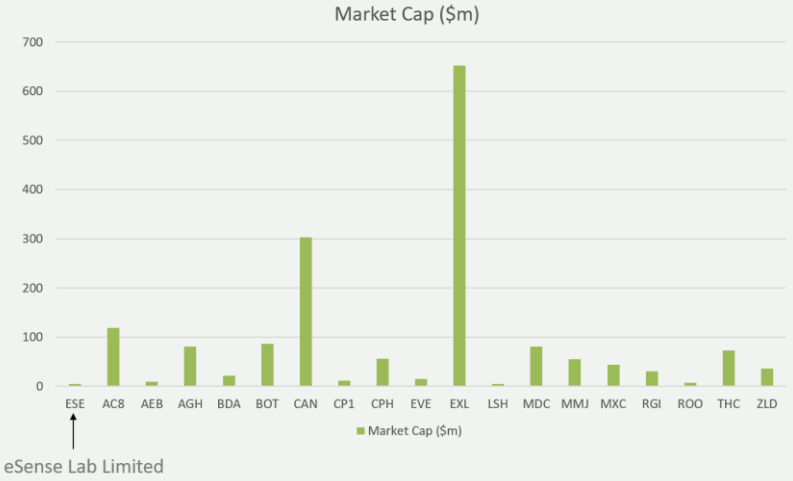
Executive Summary



Investment case

- First of its kind plant-profiling technology
- A range of commercial-ready products
- Superior quality and constituents that have been tested and sold to clients
- Market Capitalisation low compared to peers (see below chart)
- Positive feedback and repeat orders from clients
- Highly scalable, low cost/high volume market opportunities – producing more than 100L per day (per plant)
- Unmatched production costs compared to industry peers
- First vertical of commercialisation in one of the most rapidly growing markets worldwide
- Highly specialised and expert board, management and key personnel

Chart 1 – Comparative Market Capitalisations of ASX listed Cannabis Company's



eSense-Lab
A DROP OF NATURE'S ESSENCE

Corporate overview

Who we are: corporate snapshot

An emerging Life Sciences company

- Commercialising proprietary plant profiling technology that can be used to reverse engineer a comprehensive model of rare or high-value plants and reconstruct the valuable components using alternate natural sources, in a more cost-effective and sustainable way
- Listed on the ASX in February 2017 following an initial public offer that raised A$3.5m
- ASX Code: ESE
- Headquartered in Israel, with global target markets
- Experienced Israeli and Australian Board of Directors
- Cash on hand at 31 March 2019 is US$1.7m

Key market statistics (30 April 2019)

- Market capitalisation: $A4.4m
- Share price: 0.023
- Shares on issue: 190m
- 52-week high: 0.13
- 52-week low: 0.018
- GISC classification: Pharmaceuticals, Biotechnology and Life Sciences

Who we are: board of directors

Piers Lewis

Piers Lewis has over 20 years corporate advisory and management experience with various ASX listed companies and is a fellow of the Governance Institute of Australia. Mr Lewis is a Chartered Accountant and a member of the Governance Institute of Australia He is a Non-Executive Director for a number of ASX Listed companies, including Digital Wine Ventures Limited, Cycliq Group Limited and an officer of Grange Resources Limited

Amit Edri

Amit Edri has extensive experience in the medicinal cannabis industry, having served as an Independent consultant for several International medical cannabis companies. In 2013 he built a medical cannabis Vaporizers company from scratch. Mr Edri was also the COO of large-scale medical cannabis processer in Israel.

Benjamin Karasik

Benjamin (Ben) Karasik is the founder of Karasik developers Inc., a real estate/construction company in prime locations in NJ, NY & Florida. He has also managed manufacturing businesses in the US for 30 years in the fields of optics and hospitality.

Galit Asaf

Galit Assaf has extensive experience in managerial and directorship roles. She is currently the director of global bank transfers with Payoneer, an online payment services company. She is also currently a director and member of the audit and finance committee of Zur Shamir Holdings Galit has held the position of CFO and chair of the finance committee of the NTA, chair of the finance committee for the Port of Hadera, the board of the Jerusalem Development Authority, and a member of the audit committee for KANAT.

Who we are: leadership

Haim Cohen CEO

Haim Cohen has extensive managerial experience across numerous sectors including real estate, transport communications, information systems; in both private and government enterprises. He has a successful track record in business development managing project budgets of up to $4 billion. He holds a BA in Social Science from Bar-Ilan University.

Dr Eyal Kalo CTO

Eyal Kalo earned his PhD from the Weizmann Institute of Science following an extensive research around mutant p53 protein and its contribution to cancer initiation and progression. Eyal's expertise in the biotechnology industry includes the development of cell based and cell free assays for drug discovery, diagnostic and skin care applications. Eyal also has extensive project management experience and has driven projects from concept to launch in pharmaceuticals, medical devices, nutraceuticals and cosmetics.

Dr Maya Sapir-Mir Head of the Bio-botanic Unit

Maya Sapir-Mir is a domain expert in plant genetics and metabolic engineering. She has extensive experience in plant genetics, molecular biology, protein biochemistry, and cell biology. Dr Sapir-Mir earned an M.Sc. in genetics and breeding at the Faculty of Agriculture, Food and Environmental Quality Sciences and a Ph.D. in plant sciences, both from the Hebrew University of Jerusalem. Furthermore, she has conducted extensive research as part of her post-doctorate work on the agricultural research organization (ARO).


eSense-Lab

What we do: plant profiling technology

- eSense-Lab combines genetics, protein expression and phytochemical profiles to generate a comprehensive model of targeted plants
- This model is currently used to reverse-engineer cannabis plants with focus on their terpene profiles

The power of terpenes

- Terpenes are naturally occurring compounds (classified as phytochemicals) which account for the flavour and fragrance of plants. Each plant has its own unique terpene profile
- Along with that, the terpenes play a critical role in the defence mechanism of the plants protecting them form virus, bacteria and insects attack
- Plants that produce terpenes are known as aromatic plants, and its distinctive flavour and smell is derived from its unique blend of terpenes (basil, mint, oregano and cannabis)
- Cannabis is known for its various genetical strains comprising different terpene profiles which contribute to the unique aroma of each strain
- The reconstructed terpene profile exactly replicates the flavour, fragrance and other desired characteristics of the targeted plant

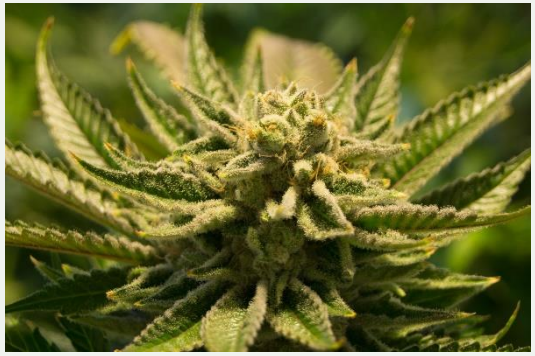
Comprehensive cannabis terpene profiling

- High detection accuracy coupled with unique reverse engineering techniques to achieve various Cannabis ‘virtual plants’

eSense-Lab profiled end product

- Multiple terpenes (up to 40) plus other vital constituents
- Accurate profile as exist in cannabis natural forms

What we solve: the market need



Improved supply and quality

- Can source target terpenes from more common plants
- Accuracy in replicating a target plant
- Consistency of products compared to conventional production
- Standardised products with fewer impurities

Significantly reduce costs

- The cost of production for 1 litre of a specific terpene extract can be as high as US$700,000
- eSense-Lab can reproduce specific terpene extracts at a fraction of the cost (0.2-1%) depending on the plant

Sustainability

- Make the essence of rare plants accessible and affordable to the broader market
- Providing sustainable alternative natural sources to the consumption of natural occurring resources, reducing the commercial pressure on wild populations of rare plants
- Cheaper
- Natural
- Accurate
- Sustainable
- High Quality
- Legal

How we do it: target markets

Based on pipeline products and ongoing R&D activity

- Establishing joint ventures of mutual development of products together with different partners
- Collaborations with companies involved with cannabidiol (CBD) products
    - Agreements have been announced, generating revenue
- Growers and extraction manufacturers
    - Agreements in place
- E-liquid and vapes
- Cosmetics, food and beverage

eSense-Lab
A DROP OF NATURE'S ESSENCE

Market opportunity

Our target plants

eSense 'virtual plants'
Hundreds of Organic Sources

Initial focus plant: legal cannabis and para-cannabis industries

- Cannabis is a very high value plant market due to high regulatory requirements, limited supply, and many medical and industrial applications.
- Estimated US retail sales of medical and recreational cannabis in 2016 of between $3.5 billion and $4.3 billion (year-on-year growth of 17% to 26%). This is forecast to reach $11 billion in 2020, posting double-digit growth each year13.
- eSense-Lab's replicated terpene profiles have the targeted characteristics of cannabis plants, however are not manufactured from the cannabis plant, do not contain any cannabinoids, and are not considered subject to the same regulatory regimes governing cannabis sourced products.

Future focus plants

- Ginseng
- Saffron
- Other medicinal plants or spices

Disrupting the legal cannabis market

- eSense-Lab aims to make cannabis phytochemical profiles available as a scalable and commercially viable solution for cannabis related product manufacturers for the first time ever, servicing the growing legal cannabis and para-cannabis industries around the world.
- The terpene profile accounts for about 0.5-3% of the plant, making it virtually impossible to produce in large scale due to the cost of raw material (cannabis). Approx. 33kg of raw cannabis plant is required to produce 1L of terpenes.
- The cost to produce 1L of terpenes would range from US$200,000-$700,000 – too expensive for most applications.
- eSense-Lab can produce more than 100L per day of commercial-ready terpene profiles from a single production facility

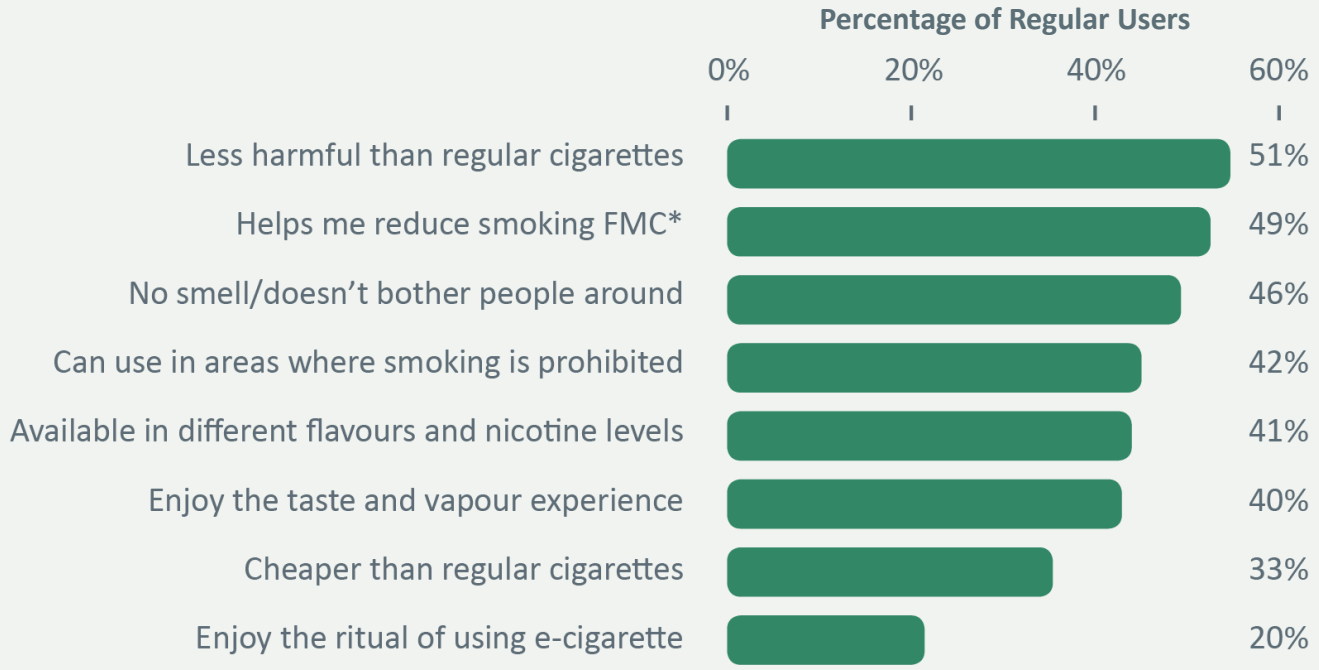
eSense-Lab has released a highly disruptive product line of reverse-engineered cannabis terpene profiles at a fraction of the cost

E-liquids: a promising initial application

The **global e-liquid market** is poised to reach approximately **US$32.8B by the year 2021**[10], and expected to grow to over **US$50 billion in 2025**, equivalent to around 10% of the actual tobacco market[16].

In the United States, the e-liquid market continues to grow rapidly, and was estimated to reach US$10B in 2017[15]. The US is also the largest revenue generating market for e-cigarettes and vaporisers globally, creating a surge in demand for e-liquids[16].

Drivers behind regular e-cigarettes use (% of regular users) 2015

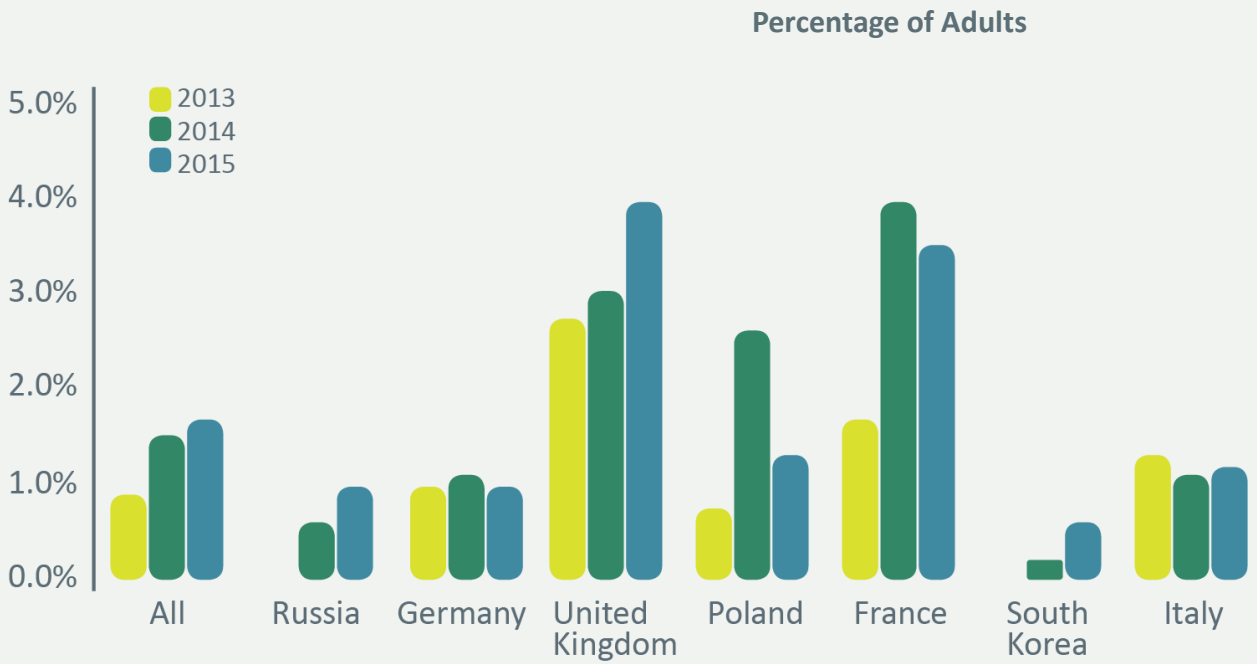


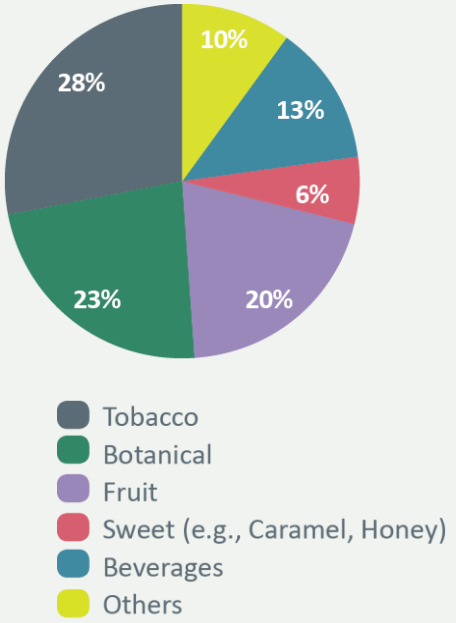
E-liquids: a promising initial application

Between 2013 and 2015, the number of e-cigarette users almost doubled, from 0.9% of adults to 1.7% total usage across the seven countries. E-liquids could also surpass consumption of conventional cigarettes in the US by 2023.

In Europe, the e-liquid market is expected to grow to over $11 billion by 2025, at a double digit compound annual growth rate. The growth rate will significantly increase after 2017, with significant revenue generation from evolving markets of the U.K., Germany, and Russia[16].

E-cigarette users as a percentage of adults, 2013-2015





Other attractive cannabis applications

Additives – energy drinks, alcohol, edibles

- eSense-Lab terpenes can be used in the same way food additives are used enabling almost endless applications
- The opportunity now exists for infused product manufactures, from alcohol to edible products, to build brand loyalty of the scale of Coca-Cola and the like

Medical Cannabis

- Retail sales of medical and recreational cannabis reached $6.7 billion in 2016 in the US, highlighting a year-on-year growth of 30%
- Total annual retail sales of medical and recreational cannabis is forecast to reach $11 billion in 2020, posting double-digit growth each year[13]. eSense-Lab can provide strain-specific terpene profiles

Pharma

- eSense-Lab has an opportunity to joint venture with pharmaceutical companies, supplying profiles for the development of patented drugs
- The Company's ability to reconstruct any given profile makes it an ideal producer of profiles 'on demand', customized to serve as 'control' in all clinical experiments. This may allow patient-specific, tailored compositions as personalised medicine

Scientific motivation

- Terpenes and cannabinoids are chemically related and were shown to have similar medicinal effects
- Put them all together with this holistic entourage effect, the impact of the whole is greater than the sum of its parts
- Numerous data indicate similar clinical effects for cannabinoids and terpenes which co-exist in the cannabis plant and therefore considered to have entourage activity related to the plant clinical benefits
- The 'entourage effect' is the notion that the pharmacological effects of cannabis are greater than the sum of individual cannabis chemical components. Harnessing the entourage effect will provide a better means to treat disease and promote health

The entourage effect

- Muscle relaxant
- Anticonvulsant (epilepsy, Parkinson's disease)
- Anti purities
- Increased bioavailability
- Anti-cancer
- Anti-fungal and bacteria infection
- Pain relief
- Anti-inflammatory
- Sedating
- Anti-anxiety
- Gastric cytoprotective
- Memory aid
- Increased mental focus

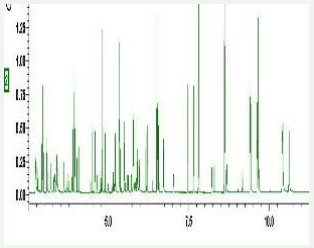
Research & development

eSense-Lab collects, analyses, re-engineers and formulates the phytochemical composition of cannabis using natural sources to provide standardised solutions for human health

Biomass

- Biomass collection
- Biomass extraction and Volatile separation

Phytochemical analysis



- Proprietary method for high resolution analysis and characterization using GC/MS
- Data is translated to a quantitative input which then enters to a formulation process

Reverse engineer

- Non Cannabis terpene from other natural sources are obtained.
- Obtained material is then formulated in exact fingerprint as was analysed to create a reverse engineered terpene profile.

Standardised solutions

- Quantified, reproducible, high quality terpene mix for drug, food, beverage and cosmetic applications

Research & development

Gas chromatography–mass spectrometry (GC-MS) analysis

- Discovery of new cannabis-based terpene chemoprints for data collection and new formulations
- Cross analysis of terpene chemoprint data with strain specific medicinal information to gain entourage insights
- Routine row material (Terpenes) assessment for purity
- Product analysis and monograph confirmation before release

Lab tests and formulation

- Formulating an exact terpene chemoprint for each analysed cannabis strain by using nature derived substances
- Evaluating synergistic effects of products in combination with cannabinoids using relevant biological models for common cannabis-oriented therapy
- Translating terpene knowledge in to cannabis-based formulations, common strain aromas and functional activity.

Routine development and innovation

- Establishment and internal monitoring of working standards to achieve highly standardized and top quality product manufacturing
- Ongoing improvement of the quality of our pipelined products to include production process, formulation methods and compositions to achieve better flavours, aromas and claims
- Developing new and innovative products, anticipating or responding to the needs of the market
- Collaborations with academy and industry

eSense-Lab
A DROP OF NATURE'S ESSENCE

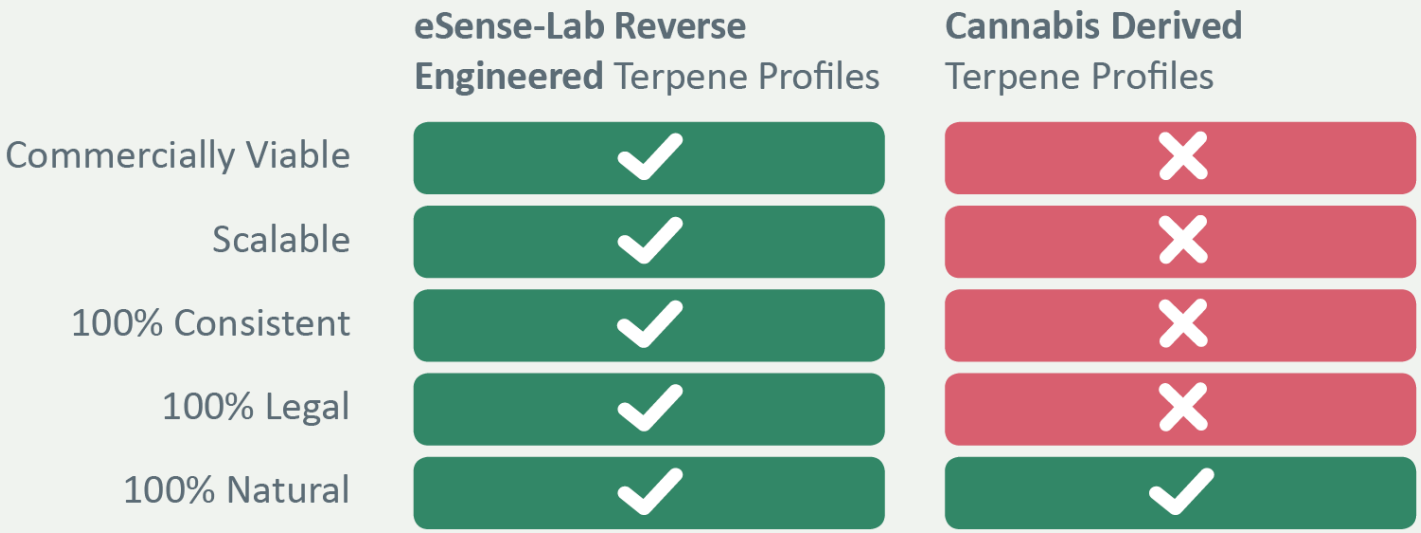
Commercialisation

Market ready

eSense-Lab has introduced the world's first 100% natural reverse engineered cannabis terpene profiles. 10 formulations currently available representing most popular cannabis strains in the USA.

Currently eSense-Lab has

- 10 formulations being sold
- Additional strains are under late stage development for commercialisation



Current market applications for terpene profiles

E-Liquids and energy drinks, alcohol and other liquid applications

- eSense-Lab terpenes can be used in the same way food additives are used, enabling almost endless cannabis-related applications, ranging from cannabis E-liquids and alcohol to cannabis-scented business cards
- eSense-Lab has already obtained first sales from e-Quits, a UK based company for use in its e-liquids and CBD based product supply. E-Quits orders several litres of e-juice per month.
- US vaping distributor Vapor Spec Inc. a California based distributer of e-juice and vaping paraphernalia has signed distribution agreement for the US and Canada valued at 5 million bottles annually.

Topicals (creams and lotions, etc.)

- Terpenes enable the creation of 100% legal cannabis-scented topicals
- Most cannabis topicals do not have the fragrance of cannabis because they are made using pure THC and CBD. eSense-Lab products enable the addition of the cannabis fragrance to topical products
- THC and CBD are the two main active ingredients (phytocannabinoids) in the cannabis plant. THC is psychoactive and CBD non-psychoactive

Current market applications for terpene profiles

Cannabis concentrates (oil)

- Cannabis oil is almost pure THC made using advanced extraction technologies and is one of the fastest growing smoking trends in the US
- During the conventional process of extracting cannabis oil, most if not all the terpenes are lost, resulting in a final product that is almost pure THC and has no flavour, no fragrance and an inferior effect
- eSense-Lab enables the re-introduction of these terpenes to extracts

Cannabis edibles (food products containing THC/CBD)

- Most edibles are made using cannabis extracts that lack the dimension of strains and provide an inferior effect
- Additionally, eSense-Lab terpenes enable the creation of 100% legal cannabis-flavoured and scented edibles worldwide, even in countries where cannabis is illegal
- Proven concept of chocolate infused with terpenes

Cannabis medicine

- While some strains are better for treating some medical symptoms than others, cannabis medicine today is only based on THC/CBD dosage and lacks the dimension of strains (phytochemical polymorphism), resulting in inferior effect
- eSense-Lab could potentially be used to introduce this dimension to future cannabis medicine

eSense-Lab
A DROP OF NATURE'S ESSENCE

Strengths & advantages

Competitive advantages

Activity	eSense-Lab	Competitors
In-house analytical exploration of cannabis terpenes per strain	Yes	No
Focus only on terpenes	No	Yes
In house analytical capabilities to monitor product accuracy and reproducibility	Yes	No
In house knowhow and experience in formulating terpenes with Cannabis and other herbals for food supplements, drugs, food and beverage, e-liquid and topical delivery	Yes	No
Terpene discovery for medical innovation and support for Cannabis entourage related claims	Yes	No

Company characteristics

Proprietary intellectual property

- Proprietary IP and trade secrets
- 40 years of combined experience in the cannabis field

Research capability

- Active research with leading academic institutes and laboratories
- Ability to conduct in-Vitro (cell cultures), pre-clinical animal research and clinical trials (human subjects)

Our expertise and our people

- Specialists in identification and quantification of the various types of phytochemicals in any given plant sample
- Advanced and validated methods and protocols to meet the specific demands of any plant's profile
- We employ experts in agronomy; phytochemical, protein and genetic extraction; chromatography of plant material; molecular biology; biochemistry; formulation and process development

Company characteristics

Premium products

- 100% cannabinoid free
- 100% natural and organic and kosher
- Food graded by the country of origin (meeting WHO regulations)
- 100% legal – none of the materials in end products are regulated substances
- Shippable across the world

Commercially ready

- Products have been validated by existing sales

Total focus on quality

- From single substrates through to validation and certification of end products
- Quality controlled manufacturing process (ISO 9001-2008)
- Quality certificates for each production batch
- In-house validated analytical protocols and standards to monitor both raw material and end product for quality, purity and accuracy
- In-house pre-formulation and formulation, enabling control of all aspects in real time, leading to faster development time, broad spectrum of products and highest quality results

References

1. E B Russo; Taming THC: potential cannabis synergy and phytocannabinoid-terpenoid entourage effects; *British Journal of Pharmacology* (2011) 163 1344–1364.
2. Langenheim JH (1994). Higher plant terpenoids: a phytocentric overview of their ecological roles. *J Chem Ecol* 20: 1223–1279.
3. Bowles EJ (2003). *The Chemistry of Aromatherapeutic Oils*, 3rd edn. Allen & Unwin: Crow's Nest, NSW.
4. Pauli A, Schilcher H (2010). In vitro antimicrobial activities of essential oils monographed in the European Pharmacopoeia 6th Edition. In: Baser KHC, Buchbauer G (eds). *Handbook of Essential Oils: Science, Technology, and Applications*. CRC Press: Boca Raton, FL, pp. 353–548.
5. Noma Y, Asakawa Y (2010). Biotransformation of monoterpenoids by microorganisms, insects, and mammals. In: Baser KHC, Buchbauer G (eds). *Handbook of Essential Oils: Science, Technology, and Applications*. CRC Press: Boca Raton, FL, pp. 585–736.
6. Carvalho-Freitas MI, Costa M (2002). Anxiolytic and sedative effects of extracts and essential oil from Citrus aurantium L. *Biol Pharm Bull* 25: 1629–1633.
7. Pultrini Ade M, Galindo LA, Costa M (2006). Effects of the essential oil from Citrus aurantium L. in experimental anxiety models in mice. *Life Sci* 78: 1720–1725.
8. Komiya M, Takeuchi T, Harada E (2006). Lemon oil vapor causes an anti-stress effect via modulating the 5-HT and DA activities in mice. *Behav Brain Res* 172: 240–249.
9. Komori T, Fujiwara R, Tanida M, Nomura J, Yokoyama MM (1995). Effects of citrus fragrance on immune function and depressive states. *Neuroimmunomodulation* 2: 174–180.
10. R&M (2016). Global E-Cigarette and Vaporizer Market Analysis 2016 – Forecast to 2022; (Online).
11. Ernest and Young (2016). E-cigarettes: an emerging category – Report (May 2016).
12. Classic Juice (2015). E-Liquid market is big business in Europe. (Online – November 2015).
13. Marijuana Business Daily (2016). *Marijuana Business Fact Book 2016*.
14. KC Hyland et al. Quantitation of Terpenes in cannabis products using the Triple Quad 3500 LC-MS/MS system. *SCIEX Concord*, Canada.
15. P Gardiner (2015). E-cigarettes: The vapor this time? Policy and regulatory sciences program officer, tobacco related disease research program (TRDRP), University of California Office of the President. First 5 California Commission Meeting – April 23, 2015, California.
16. BIS Research 2015. U.S. E-liquid Market: Focus on Type, Origin, and Distribution Channel – Estimation & Forecast, 2015-2025. (2015).

eSense-Lab

A DROP OF NATURE'S ESSENCE

Investor enquiries
Piers Lewis
Chairman
+ 61 409 374 893
piers@smallcapcorporate.com.au
esense-lab.com

Media enquiries
Julia Maguire
The Capital Network
+61 419 815 386
julia@thecapitalnetwork.com.au

Corporate Advisor
EverBlu Capital
+61 2 8249 000
info@everblucapital.com