ASX RELEASE

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Encouraging results from further tests undertaken at the Central Virology Lab of the Ministry of Health

Highlights:

- Further testing of eSense's proprietary blend terpene profile, TRP-ENV, was undertaken to determine anti-viral activity against HCoV-OC43 corona strain virus when combined with lower levels of ethanol than have previously been tested.
- Results of the TRP-ENV combination and reduced levels of ethanol demonstrated an immediate neutralisation of HCov-OC43, that was at least as effective as 70% ethanol.
- Testing of TRP-BIO, a unique terpene combination customised for co-existence with BetterAir's bacteria, has yielded a mild anti-viral activity.

eSense-Lab Limited (ASX: ESE) ("**eSense**" or the "**Company**") is pleased to provide an update on the research conducted in the Central Virology Lab of the Ministry of Health in Sheba Medical Center ("**MOH**").

Further tests have been conducted under the Company's research agreement with MOH, for the testing of TRP-ENV in combination with low level ethanol, against HCov-OC43 (a weak strain of human corona virus which represents an accepted surrogate to evaluate activity of substances against SARS-CoV-2 (the virus that causes the disease called COVID-19))[1] ("**Stage 2 - Part 1 Trial**"). This study was conducted as part of the Company's commercial goal to develop a superior, organic, dominant sanitiser product that provides added protection against bacteria and viruses, while reducing its ethanol content (which is known for its harmful side effects to the skin and its flammability risks).

The Stage 2 – Part 1 Trial follows a conclusive result previously announced on 27 November 2020, which showed no superior anti-viral contribution of TRP-ENV to ethanol <70%. Accordingly, the Stage 2 – Part 1 Trial was conducted in the presence of a lower ethanol level than was previously tested ("**ethanol<<70%**"), which resulted in encouraging anti-viral activity of TRP-ENV in the presence of ethanol <<70%, which was superior to the relevant ethanol <<70% alone.

The second part of these tests ("**Stage 2 – Part 2 Trial**") included an evaluation of anti-viral properties of a new proprietary terpene blend developed for BetterAir Ltd ("**BetterAir**"). BetterAir is a commercial company that already sells a unique bacterial based air and surface sanitising technology. The proprietary terpene blend, termed TRP-BIO, was specifically designed to be tolerated by the unique BetterAir bacterial population. The aim of Stage 2 – Part 2, which was also undertaken by MOH, was to generate feasibility data that would bridge into a commercial negotiation between ESE and BetterAir. The study resulted in potential anti-viral activity of TRP-BIO in the presence of BetterAir's bacteria, which eSense considers may provide a potential future opportunity to enter into a commercial agreement with BetterAir.

[1] COVID-19 Pandemic: Insights into structure, function, and hACE2 receptor recognition by SARS-CoV-2 Anshumali Mittal., et al PLOS PATHOGEN August 21, 2020

Methodology and Results:

Stage 2 – Part 1 Trial

The Stage 2 – Part 1 Trial was repeated under two viral conditions, as follows:

First Viral Condition

The first viral condition was as previously announced on 27 November 2020. Six hundred (600) particle forming units (PFU) of HCoV-OC43 viruses were incubated in the presence of the tested items for a period of 1, and 30 minutes. The incubated viruses were then diluted 1:100 and resuspended in the medium of the targeted cells at a final concentration of 0.001MOI (1 virus for every 1000 cells) for infection. Absorption of HCoV-OC43 to the cells was carried out at 33ºC for 1 hour. HCoV-OC43 was then replaced with fresh medium and the cells were incubated for 6 days at 33ºC to allow the virus to replicate, reproduce, and spread out. After 6 days the supernatant of the cells was collected, extracted for viral genetic material and quantified for viral copy number using Real Time PCR. In parallel, the cells were stained with crystal violate to confirm their viability. Results of one test for each tested item are expressed in Table 1 below.

Second Viral Condition

The second viral condition was taken under a far more stringent viral load. Five hundred thousand (500,000) particle forming units (PFU) of HCoV-OC43 viruses were incubated in the presence of the tested items for a period of 3, 15, 30 and 60 minutes. The incubated viruses were then diluted 1:100 and resuspended in the medium of the targeted cells at a final concentration of 1.5MOI (1.5 virus for 1 cells) for infection. Absorption of HCoV-OC43 to the cells was carried out at 33ºC for 1 hour. HCoV-OC43 was then replaced with fresh medium and the cells were incubated for 6 days at 33ºC to allow the virus to replicate, reproduce, and spread out. After 6 days the supernatant of the cells was collected, extracted for viral genetic material and quantified for viral copy number using Real Time PCR. In parallel, the cells were stained with crystal violate to confirm their viability. Results of one test for each tested item are expressed in Table 2 below.

Stage 2 – Part 2 Trial

The Stage 2 – Part 2 Trial was executed as follows:

A suspension of 8*10^9 bacteria spores were provided by BetterAir for the anti-viral experiment. Five ml (5ml) of spore suspension were transferred in to 45ml LB (medium growth for bacteria) and incubated at 37°C for a period of 4h in a shaker incubator. Within that time, all spores were completely sprouted into a viable bacterium. Next, 500,000 PFU of HCov-OC43 were incubated in the presence of the sprouted bacteria and the tested items for a period of 3, 15, 30 and 60 minutes. The incubated viruses were then diluted 1:100 and resuspended in medium of the targeted cells at a final concentration of 1.5MOI (1.5 virus for 1 cells) for infection. Absorption of HCoV-OC43 to the cells was carried out at 33ºC for 1 hour. HCoV-OC43 was then replaced with fresh medium and the cells were incubated for 6 days at 33ºC to allow the virus to replicate, reproduce, and spread out. After 6 days the supernatant of the cells was collected, extracted for viral genetic material and quantified for viral copy number using Real Time PCR. In parallel, the cells were stained with crystal violate to confirm their viability. Results of one test for each tested item are expressed in Table 3 below.

The tables below compare the viricidal efficiency of terpene formulas on HCoV-OC43 corona virus strain over the 1, 3, 15, 30 and 60-minute intervals. According to the World Health Organization (WHO), a **protective** or **high protective** product against viruses requires a **log reduction** in viral copy number equal or greater than 4 (log≥4) or 5 (log≥5), respectively. The full tick represented in these tables indicates compounds or combinations that demonstrated an efficient virus neutralisation with a log reduction above 4 or 5 in comparison to control. The partial tick symbols (✓) represent a less efficient reduction which was lower than 3.5 log reduction.

Table 1

Stage 2 – Part 1, First Viral Condition		
PROFILE	**1 MIN**	**30 MIN**
70% Ethanol	✓	✓
Ethanol <<70%	✓	✓
TRP-ENV Concentration 1 + Ethanol<<70%	✓	✓

Table 2

Stage 2 – Part 1, Second Viral Condition				
PROFILE	**3 MIN**	**15 MIN**	**30 MIN**	**60 MIN**
Ethanol <<70%	✓	✓	✓	✓
TRP-ENV Concentration 1 + Ethanol <<70%	✓	✓	✓	✓
TRP-ENV Concentration 2 + Ethanol <<70%	✓	✓	✓	✓

Table 3

Stage 2 – Part 2				
PROFILE	**3 MIN**	**15 MIN**	**30 MIN**	**60 MIN**
TRP-BIO Concentration 1 + Bacteria	✗	✗	✓	✓
TRP-BIO Concentration 2 + Bacteria	✗	✗	✓	✓
TRP-BIO Concentration 2 + intermediator + Bacteria	✓	✓	✓	✓

TRP-ENV

The Company is pleased to announce that the TRP-ENV combination with an even lower level of Ethanol than has been previously tested by the Company (ethanol<<70%) demonstrated an immediate neutralisation of HCov-OC43. This neutralisation was far superior to ethanol<<70% alone, as measured under two viral load conditions (acceptable load vs stringent load).

Following these results, an appropriate formula development will be implemented with TRP-ENV and ethanol<<70% for both hand and surface sanitisers, to open new commercialisation options to drive such products into the market.

TRP-BIO

TRP-BIO is a unique terpene combination that has been customised to co-exist with BetterAir's unique sanitising bacteria. This new proprietary blend has shown a certain anti-viral effect against HCov-OC43 which was shown only after incubation for a period of 30 and 60 minutes in the presence of BetterAir's bacteria. Nevertheless, when TRP-BIO was tested in the presence of an intermediate compound, its effect was slightly more robust, demonstrating a mild anti-viral activity after 3 minutes, which was maintained across all time intervals.

These results provide feasibility to use this unique terpene combination as an additive substance to BetterAir's sanitising technology, which is already well distributed across Europe and USA. The Company is now looking to schedule further discussions with BetterAir to plan next steps with respect to further testing (if required), and to determine a potential business model.

More about TRP-ENV™

eSense's R&D team has conducted an extensive literature search to collect established scientific data indicating the most effective anti-viral terpenes. Research combined with eSense's strong terpene expertise has enabled the development of a proprietary terpene mix aimed specifically at anti-viral activity. According to the R&D team, the terpenes were selected based on a criteria research model, which prioritised terpenes based on their unique lypophilic properties, and synergistic effects as anti-viral substances, to create two formulations: TRP-ENV and TRP-COV, each with a different anti-viral focus. The testing was executed in 3 stages, used for screening each sample's efficacy. All sample results were analysed in real-time PCR for virus quantification as copy/ml.

As announced on 27 November 2020, eSense discovered TRP-ENV to be far more active against HCov-OC43 in comparison to TRP-COV. TRP-COV was therefore excluded from further testing, with TRP-ENV testing being furthered in a combination of studies. Refer to the Company's announcement dated 27 November 2020, which details results of combination studies with Wise Wine, SeaLaria and other low level ethanol.

Yoav Elishoov, Global CEO of eSense, said *"Having received these promising results, eSense will now focus on determining the right partners for comercialisation of products. The Company is concentrating its efforts on delivering these products to the market as soon as possible, and will be using every effort to push its commercialisation strategy forward."*

This announcement has been authorised by the Board of Directors of eSense.

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For further information, please contact:

Investor enquiries
Gigi Penna
+61 404 147 568
gigi@calderahouse.com.au

About eSense-Lab | Registered office: Suite 5 CPC, 145 Stirling Highway, Nedlands, WA, Australia, 6009
eSense-Lab Ltd (ASX:ESE) is a life sciences company creating virtual plant-based products for medicinal and recreational consumption. Headquartered in Israel, eSense-Lab combines genetics, mRNA expression, phytochemical characterisation and unique formulations to generate comprehensive models of rare or high value plants. With multi-disciplinary research and development expertise, eSense has game-changing techniques and unique reverse-engineering capabilities, placing it at forefront of the growing international terpene market. eSense has created virtual cannabis, with all the characteristics of the real plant, without the psychoactive and heavily regulated cannabinoid compound, for mass consumer consumption.

To learn more, please visit www.esense-lab.com.