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Venturing into the future: Exploring venture capitalists' decision-making criteria for cellular agriculture startups

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ABSTRACT

Objective: The objective of the article is to explore the investment decision criteria of venture capitalists (VCs) in the cellular agriculture industry, focusing particularly on the initial screening phase. It seeks to understand the relative importance of various criteria that VCs consider when selecting cellular agriculture ventures for early-stage investment.

Research Design & Methods: The research employs a multi-method approach, including expert interviews and a survey-based choice-based conjoint (CBC) experiment. We conducted interviews with investment managers from VC firms, an incubator, and a nonprofit organisation. The CBC experiment involved 44 individual investors, focusing on various investment criteria like entrepreneurial spirit, professional background, and scalability.

Findings: The study reveals that in the cellular agriculture sector, investors place the highest importance on scalability, the entrepreneurial spirit of the founding team, and the value-added of the product and technology. Other criteria like the team's track record, proof of concept, degree of competition, and professional background are considered less important. This emphasis on scalability and product value differs from non-industry-specific studies where team-related criteria often dominate.

Implications & Recommendations: For new ventures in cellular agriculture, understanding these criteria can help tailor their investment proposals more effectively. For cellular agriculture investors and policymakers, these insights can assist in benchmarking and shaping policies to support industry development. Recommendations for policymakers include funding open-access R&D and creating critical infrastructure.

Contribution & Value Added: This article contributes significantly to the field by applying the conjoint study method in the context of finance, which is relatively novel. This approach offers valuable insights that surpass those obtained from traditional surveys, providing a more nuanced understanding of investment decision criteria. It is one of the first to systematically investigate these criteria in the growing area of cellular agriculture. The findings add a new dimension to the 'jockey (entrepreneur) vs horse (product)' debate in venture capital decisions and offer practical guidance for entrepreneurs and investors in this sector, making it a noteworthy addition to entrepreneurial finance and venture capital studies.

Article type:	research article
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INTRODUCTION

Venture capital (VC) is a crucial source of financing for high-tech entrepreneurial ventures, especially in the field of cellular agriculture (National Venture Capital Association, 2022; Smith & Smith, 2019; GFI, 2022a; GFI, 2022b). Cellular agriculture refers to technologies that use cell culture techniques to produce agricultural products that are typically derived from animals, such as meat and dairy (Rischer

et al., 2020; Stephens *et al.*, 2018). Cellular agriculture using tissue engineering and fermentation techniques are the most common forms of technology in this field (Stephens *et al.*, 2018; Post, 2012). The most common application of the two technologies is cultivated meat and animal-free dairy products, respectively (GFI, 2022a; 2022b). A key characteristic of both production methods is the endeavour to produce products that are biologically equivalent to conventional animal products and thus offer – when considering food products – equivalent or better products in terms of taste, nutritional value, quality, and other sensory characteristics (smell, texture, appearance, and consistency). Several survey-based studies from various countries identify high consumer acceptance and openness towards these new products (The Environmental Law Institute and New Harvest, 2017; Slade & Thomas, 2023; Thomas *et al*., 2023). The main reasons for this high acceptance are primarily animal welfare and health aspects (Thomas & Bryant, 2021; Thomas *et al*., 2023). Due to the capital-intensive nature of these novel technologies, young ventures require high initial investments, which are usually provided by equity from venture capitalists or angel investors (CE Delft, 2021b). Besides the given consumer acceptance, the industry is particularly interesting from an investor's perspective because it can contribute to reducing the ecological footprint compared to traditional agriculture (CE Delft, 2021a). Investors are also very positive about the fact that the industry has already achieved important milestones: for example, the first cultivated meat patent (van Eelen *et al.*, 1999), cultured fish research (Benjaminson *et al.*, 2002), the cultivated beef burger presented as a proof of concept in London (Fountain, 2013), and the first regulatory approval and commercialisation of animal-free dairy and cultivated meat (Kowitt, 2019; Ives, 2020). Estimates suggest that these and similar products could make up 11-22% of the total protein market by 2035 (BCG & Blue Horizon, 2021). Over 100 global startups, especially from the USA, Israel, and the UK, are working in this sector (Buxton, 2022; GFI, 2022b). Major food companies like Nestlé are partnering with startups (GFI, 2022a; 2022b), which is also seen as a positive sign for the investment environment because it creates attractive exit opportunities for investors. It is therefore not surprising that we are already seeing substantial investment spikes in the market (GFI, 2022a; 2022b) and that notable investors like Softbank's Vision Fund 2 and BlackRock have already discovered this industry (GFI, 2022b). Forecasts predict a massive capital influx by 2035 (BCG & Blue Horizon, 2021), driven by new technological opportunities that are expected to boost VC activity (Dalal, 2022). More VC money will also lead to faster progress in the industry and further advance internationalisation (Bigos & Michalik, 2023). At the same time, there is lacking technical know-how to undertake due diligence (GFI, 2021a). In summary, cellular agriculture promises sustainable and ethical food solutions but requires, among other things, deep research to better understand market actors such as investors and startups.

The article aims to explore the early-stage investment decision criteria of venture capitalists (VCs) in the cellular agriculture industry, focusing particularly on the initial screening phase, where 80% of all proposals are rejected (Petty & Gruber, 2011). In this sense, the present study fills an existing research gap. Our research reveals that in the cellular agriculture sector, investors place the highest importance on scalability, the entrepreneurial spirit of the founding team, and the value-added of the product and technology. This emphasis differs from non-industry-specific studies where team-related criteria often dominate. These findings provide valuable insights for entrepreneurs and investors in the cellular agriculture industry. In this context, the study of VC decision-making behaviour in cellular agriculture is important as it could lead to more successful ventures, better VC decisions, a better match between the parties, and advice for policymakers. We will use a conjoint approach for this purpose, which is a newer and modern method in the context of Entrepreneurial Finance Study.

The remainder of this article is structured as follows. As part of a literature review, we will highlight the theoretical and empirical insights regarding the decision criteria of venture capitalists and the current state of research. Based on this, we will derive our hypotheses. We will then describe our dataset and construct the choice-based conjoint experiment. Subsequently, we will present and critically discuss the results. The article will conclude with a conclusion, potential limitations, and an outlook on future research in this area.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Investment decisions are highly relevant in the VC market. Basically, in each phase of the investment process, VCs must decide whether to move on with the business proposal under investigation or not. Decisions must be taken along with high uncertainty in terms of the future outcome of the investment (Gompers, 1995). In fact, 35% of the ventures supported by VCs disappear within five years, and 20% of these ventures do not yield any capital returns (Wessendorf *et al.*, 2019 with further references). Therefore, the greatest challenge for VC firms is to decide in which of the many entrepreneurial ventures to invest. Both theoretical and empirical research provide insights here that aim to answer how investors make their decisions and what decision criteria play a role. Theoretical constructs offer insights into how investors make selection decisions regarding startups. Signalling theory is central to this understanding, highlighting how information is communicated and interpreted between entrepreneurs and investors (Connelly *et al.*, 2011). Investors interpret signals from startups, like business plans or slide decks, which can vary in effectiveness depending on the investor's characteristics and objectives (Andres, 2018; Janney & Folta, 2006). The importance of specific signals may depend on investors' resources, goals (resource-based view), agency structures (principal-agency theory), or cognitive structures (theory of cognitive schemata) (DiMaggio, 1997; Barney, 1991).

When examining empirical research on VCs' selection criteria, various studies consistently identify similar criteria. Across different studies, the criteria of team, product/service, market, and financials emerge as particularly relevant (Block *et al.*, 2021; Ferrati & Muffatto, 2021; Wessendorf *et al.*, 2019; Franke *et al.*, 2008; Shepherd *et al.*, 2000; Poindexter, 1976; Wells, 1974). Subfields of empirical research on selection criteria further examine specific characteristics of the investment decision and provide additional insights into potentially new or already known selection criteria. For instance, Petty and Gruber (2011) and Gompers *et al.* (2020) investigated selection criteria depending on the investment process phase, expanding on an earlier study by Tyebjee and Bruno (1984). Muzyka *et al.* (1996) examined differences in selection criteria related to the geographic origin of VCs and startups. Hall and Hofer (1993) provide insights into selection criteria depending on the investor type, comparing VCs with other investor groups. Block *et al.* (2021) focus on impact investors and empirically explore their decision criteria. Selection criteria related to the educational level and professional experience of investors are explored and compiled by Moritz *et al.* (2021) as well as Kim and Lee (2022). Scholars also identified industry-specific differences in selection criteria, with Wessendorf *et al.* (2019) examining these with a focus on technology ventures. Gompers *et al*. (2020) and Petty and Gruber (2011) have also considered industry-specific differences in selection criteria. However, a research gap exists regarding the very young and innovative field of cellular agriculture. We aimed to address the lack of empirical research on the selection criteria of early-stage investors regarding cellular agriculture ventures.

To address this research gap, we first derived hypotheses that we subsequently tested empirically. As outlined above, relevant studies in this field identify the criteria of team, product, market, and financials as the key selection criteria (Block *et al.*, 2021; Ferrati & Muffatto, 2021; Wessendorf *et al.*, 2019; Franke *et al.*, 2008; Shepherd *et al.*, 2000; Poindexter, 1976; Wells, 1974). We focused particularly on the very early phase where financials do not yet play a significant role. Therefore, we formulated our hypotheses based on the criteria of *(1) Team*, *(2) Product*, and *(3) Market*. We operationalised the measurements within these criteria using attributes derived from the results of other empirical research. Since no previous research has considered the field of cellular agriculture, we adopt a mixed methods approach. Prior to the main choice-based conjoint experiment, we conducted five interviews with investment managers from three prominent international VC firms, one incubator, and one nonprofit organisation. These expert interviews ensured that the criteria and attributes identified in the literature were also relevant in this specific industry, making them suitable for our empirical validation. Moreover, we asked in these semi-structured, recorded interviews lasting 20-30 minutes if there were any other important criteria we might had missed.

Regarding the criterion of *(1) Team*, previous research has consistently found that cognitive, personality-related, and motivational characteristics of the team are among the most important criteria.

The attribute to be tested here was *(1a) The entrepreneurial spirit of the founding team* (Block *et al.*, 2021; Hsu *et al.*, 2014). Furthermore, research has confirmed that the team's professional background influences investors' decision-making processes, specifically differentiating between business and scientific/technical backgrounds (Block *et al.*, 2021; Franke *et al.*, 2008). Therefore, we will test the attribute *(1b) The professional background of the founding team*. The track record of the team, indicating prior experience such as industry-related or entrepreneurial experience, can be a decisive quality signal for investors. Numerous studies highlight the importance of this attribute (Moritz *et al.*, 2021; Block *et al.*, 2019; Wessendorf *et al.*, 2019). Based on its practical and empirically established significance, we included the attribute *(1c) The track record of the founding team* to capture team-related criteria. We also confirmed that these attributes as particularly important in the interviews.

For the criterion of *(2) Product*, we first tested attribute *(2a) The proof of concept*, which describes if a proof of concept is available for the venture's product/business model, serving as a quality signal for investors. Block *et al.* (2021) attributed considerable importance to this criterion. With attribute *(2b) the value-added of product and technology*, we combined aspects such as competitive advantage, uniqueness (USP), and degree of innovation in one attribute, describing the value-added for the customer or industry (*e.g.* cost reduction, product quality, or emission reduction). This attribute has also been empirically classified as particularly important (Moritz *et al.*, 2021; Block *et al.*, 2019). The third attribute for the product criterion was *(2c) the scalability*, describing the possibility and difficulty of scaling the venture's project (*e.g.* concerning time and investment required). This attribute is important not only financially but also for the social impact to be achieved. The results from Block *et al.* (2021) motivated us to include this attribute. Although other empirical studies indicate that intellectual property is important, we excluded this criterion as it is not significant in the initial screening phase of startups but becomes important in later stages. We also validated our chosen attributes as important in the interviews, with other attributes being deemed less relevant due to the early phase focus.

To represent the criterion of *(3) market*, we selected attribute *(3) the degree of competition*, describing the intensity of competition among industry members during development (*e.g.* in the race for patents). This differentiates from the value-added aspect by focusing on the number of competitors aiming for similar advancements. A study on biotechnology startups highlighted the importance of this attribute (Jung *et al.*, 2011). We assumed it was the most suitable for our case based on its empirical validation. Other market-related attributes found in the literature are seen as redundant in industry-focused studies like ours since startups in this field operate under the same market conditions (Block *et al.*, 2021). This was also confirmed by the experts we interviewed.

Based on the above, we derive hypotheses for the team criterion (1) and the attributes (1a) the entrepreneurial spirit of the founding team, (1b) the professional background of the founding team, and (1c) the track record of the founding team, forming hypotheses H1a to H1c. For the product criterion (2) and the attributes (2a) the proof of concept, (2b) the value-added of product and technology, and (2c) the scalability, we derive hypotheses H2a to H2c. Finally, for the market criterion (3) and the attribute (3) the degree of competition, we formulated hypothesis 3. In hypotheses 4a and 4b, we examined the relative importance of different criteria by comparing them. Publications by Block *et al*. (2021), Wessendorf *et al*. (2019), and Franke *et al*. (2008) highlight the importance of considering the relative significance of team versus product and product versus market in such studies. Below, we outline the derived and justified hypotheses:

H1a: Venture capitals are more likely to select a cellular agriculture venture that has a (founding) team with a high entrepreneurial spirit compared to a cellular agriculture venture that has a (founding) team with a low entrepreneurial spirit.

H1b: Venture capitals are more likely to select a cellular agriculture venture that has a (founding) team with a scientific/technical professional background compared to a cellular agriculture venture that has a (founding) team with a business professional background.

H1c: Venture capitals are more likely to select a cellular agriculture venture that has a (founding) team with a strong track record compared to a cellular agriculture venture that has a (founding) team with a weak track record.

H2a: Venture capitals are more likely to select a cellular agriculture venture that can provide a proof of concept than a cellular agriculture venture that cannot provide proof of concept.

H2b: Venture capitals are more likely to select a cellular agriculture venture that offers a high value-added through their product and technology than a cellular agriculture venture that offers a low value-added through their product and technology.

H2c: Venture capitals are more likely to select a cellular agriculture venture with a high degree of scalability than a cellular agriculture venture with a low degree of scalability.

H3: Venture capitals are more likely to select a cellular agriculture venture with a low degree of competition than a cellular agriculture venture with a high degree of competition.

H4a: Venture capitals estimate the team dimension of decision criteria as more important than the product dimension.

H4b: Venture capitals estimate the product dimension of decision criteria as more important than the market dimension.

RESEARCH METHODOLOGY

Data and Sample

To evaluate cellular agriculture investors' selection criteria, we conducted a survey-based conjoint study. At the time of data collection, there was a population size of 453 investors in cultivated meat and seafood (GFI, 2022a). Since cellular agriculture also encompasses precision fermentation, it can be inferred that the total number of investors in cellular agriculture is somewhat higher than this figure. In our conjoint analysis, 44 investors participated, making 26 decisions each, resulting in a total of 1 144 decisions. This means our empirical study captured approximately 10% of the population size. In comparison to previous conjoint studies by Franke *et al.* (2006), Franke *et al.* (2008), and Jung *et al.* (2011), the sample size of this experiment was appropriate. There is no reliable database of cellular agriculture investors. Thus, we manually compiled initial lists of relevant investors based on various GFI's State of the Industry Reports (GFI, 2021b; 2021c; 2020a; 2020b; 2019). Investors were later contacted and invited to participate via the personal network of the authors, particularly through email and LinkedIn outreach. We conducted the survey-based conjoint from 9 February until 25 March 2022. During this period, we sent two reminders to investors who had not yet participated. A total of 101 respondents began answering the survey, of which 51 completed it. Of these 51, a further 7 respondents were excluded because they had not been involved in real (screening) decision-making processes regarding cellular agriculture ventures. This ensured that participants were familiar with what we wanted to examine. In detail, we also examined how long the investors took to participate and would have excluded participants if their responses seemed too quick and therefore not completed with the desired diligence. However, we did not have to disregard any entries for this reason.

Descriptive Statistics

Each participant completed a questionnaire with individual-level, organisational-level, and investment portfolio-level questions. Most investors were men (77.3%), aged 30-40, holding a master's or MBA (61.4%). Most had entrepreneurial experience (61.4%) and made over ten decisions on cellular agriculture ventures. The prevalent affiliation was with VC funds (72.7%), and many were partners or CEOs (45.5%). They favoured impact and ESG investing, scoring 6.05 and 5.55 out of 7. Organisational-wise, most had assets between USD 26m-250m, with 47.6% making 2-4 investments in cellular agriculture. A notable 61.4% viewed cellular agriculture as their core activity, mainly investing in North America (77.3%) and Europe (54.5%). The leading investment areas were B2C end product commercialisation and whole muscle seafood (70.7%). For further details, please refer to the following descriptive statistics.

The individual investor characteristics were as follows. For gender distribution, 22.7% of the investors were women, 77.3% – men, and 0.0% – non-binary. The average investor age was 38.41 years with a median age of 35 years. Regarding the level of education, 2.3% had less than a high school education,

18.2% held a bachelor's degree, 61.4% had a Master's or MBA, and 18.2% – a PhD. In terms of the field of education, 50.0% studied business/economics, 11.4% – humanities & social sciences, 18.2% – natural sciences, 34.1% – engineering & technology, 11.4% – medical & health sciences, 4.5% agricultural sciences, and 4.5% law. Experience in various sectors shows that 81.8% had a background in science/tech, 88.6% in finance, and 38.6% in non-profit. When it comes to roles, 61.4% had experience as entrepreneurs, 77.3% as managers, and 97.7% as investors. Involvement in cellular agriculture revealed that 2.3% made 1 investment, 25.0% – 2 to 4 investments, 15.9% – 5 to 10 investments, and 56.8% – more than 10 investments. Regarding investor type, 72.7% were associated with venture capital funds, 6.8% with incubators/accelerators, 4.5% with business angels, 9.1% with family offices, 2.3% with corporate venture capital funds, 2.3% with endowments/foundations, and 2.3% with venture studios. The current positions held by these investors were as follows: 45.5% were partner/CEO, 22.7% – director/principal, 9.1% – investment managers, 20.5% – associate/analyst, and 2.3% – VC fellows. In terms of personal perspective, on a scale of 7 (7 = very strongly resonates), traditional investing had an average score of 5.34 and a median score of 6. Socially responsible investing (SRI) averaged 5.18 and a median score of 5. Moreover, ESG investing had a mean score of 5.55 and a median score of 6. Cleantech investing averaged 5.34 with a median score of 6. Impact investing had a mean score of 6.05 and a median score of 6. Venture philanthropy had a mean score of 3.77 and a median score of 4.

The characteristics of the investment entities were as follows. Assets under management (AuM) in USD for the sample (n = 44) were distributed as follows: 15.9% managed less than 10 million USD, 20.5% – between 11 million and 25 million USD, 29.5% – between 26 million and 100 million USD, 25.0% – between 101 million and 250 million USD, 4.5% – between 251 million and 1000 million USD, and 4.5% – more than 1 billion USD. The internal rate of return (IRR) for the sample (n = 30) was as follows: 6.7% had an IRR of 1-10%, 20.0% – 11-20%, 20.0% – 21-30%, 16.7% – 31-40%, and 36.7% – more than 40%. Regarding syndication preference, 6.8% preferred one investor, 56.8% – more than one investor, and 36.4% were indifferent. The location of headquarters was distributed as follows: 40.9% in North America, 2.3% – South America, 2.3% – Oceania, 9.1% – Asia, and 45.5% – Europe. The number of employees (n = 42) was as follows: 4.8% had 1 employee, 50.0% – 2 to 5 employees, 23.8% – 6 to 10 employees, and 21.4% – more than 10 employees. Financial instruments used (multiple choice) included equity at 97.7%, debt at 6.8%, convertible loans at 75.0%, and SAFE[1] at 9.1%. Non-financial support provided (multiple choice) included coaching/mentoring at 81.8%, strategic advice at 81.8%, recruitment at 34.1%, PR/marketing at 50.0%, business development at 70.5%, fundraising support at 84.1%, legal support at 9.1%, infrastructure at 4.5%, network support at 90.9%, and team building at 2.3%. The industry focus was primarily on food, food tech, and alternative protein. The number of investments made (n = 42) was distributed as follows: 9.5% had made no investments, 9.5% – 1 investment, 47.6% – 2 to 4 investments, 14.3% – 5 to 10 investments, and 19.0% – more than 10 investments. Prior investor types (n = 4) included 75.0% venture capital funds and 25.0% – family offices.

The characteristics of the cellular agriculture portfolio companies were as follows: 61.4% had cellular agriculture as their core activity. Regarding the investment stage (multiple choice), 59.1% were in the pre-seed stage, 75.0% in the seed stage, 56.8% in the startup stage, 22.7% in the growth/expansion stage, and 6.8% in the buy-in/buy-out or exit stage. The location of the investees (multiple choice) was distributed as follows: 77.3% in North America, 13.6% in South America, 13.6% in Oceania, 36.4% in Asia, 11.4% in Africa, 54.5% in Europe, and 6.8% in the Middle East. In terms of cellular agriculture categories, 6.8% focused on cultivated products, 11.4% on precision fermentation, and 81.8% on both. For the cultivated business model (n = 39), 51.3% were involved in cell lines (B2B), 53.8% in cell culture media (B2B), 41.0% in scaffolding (B2B), 46.2% in bioprocessing design (B2B), 74.4% in end product (B2C), 33.3% in ingredients (B2C), and 66.7% in ingredients (B2B). For the precision fermentation business model (n = 41), 65.9% were involved in target metabolites (B2B),

[1] The term SAFE stands for a simple agreement for future equity which 'is an investment contract that provides rights to an investor for future equity, obtainable upon a liquidity event or equity financing' (see Akingbemila, 2022). The underlying idea is to simplify the process of raising new capital for early-stage ventures, and it was established to replace convertible bonds (see *e.g.* Akingbemila, 2022 with further references. Noteworthy, four individuals (9.5%) indicated that they had not invested in cellular agriculture at their current organisation but had invested at their previous organisation.

53.7% in microbial strains (B2B), 70.7% in feedstock discovery (B2B), 24.4% in bioprocessing design (B2B), 46.3% in end products (B2C), 58.5% in ingredients (B2C), and 26.8% in ingredients (B2B). Regarding product type (n = 41), 29.3% produce whole muscle meat, 24.4% produce ground meat, 41.5% produce whole muscle seafood, 31.7% produce ground seafood, 36.6% produce milk, 17.1% produce cheese, 2.4% produce other dairy products, 65.9% produce eggs, 53.7% produce pet food, 70.7% produce collagen and gelatine, 24.4% produce fats and oils, 46.3% produce functional ingredients, 58.5% produce textiles and materials, and 26.8% produce chocolate.

Design of the Choice-based Conjoint Experiment

We applied a survey-based conjoint experiment[2] to quantitatively evaluate the decision-making of cellular agriculture investors. Initially, conjoint analysis has been used in marketing to assess the relative importance of product attributes (Green & Srinivasan, 1990). The experimental design has then been transferred to the assessment of investor's decision-making (Shepherd & Zacharakis, 1999). Conjoint experiments can overcome several limitations associated with previous decision-making research that rely heavily on post-hoc methods (*e.g.* interviews or questionnaires) (Block *et al.*, 2021). Among the limitations are several heuristics and biases, such as the self-reporting bias, and recall as well as rationalisation bias due to the use of past information in post hoc methodologies (see *e.g.* Zacharakis & Meyer, 2000; Andres, 2018; Franke *et al.*, 2006; 2008). Conjoint analysis addresses these limitations by collecting data in real-time experiments, meaning data is collected while investment decisions are being made (Block *et al.*, 2021). Consequently, conjoint analysis allows for a better capture of investors' real decision-making behaviour and thus produces more valid results (Block *et al.*, 2019; Franke *et al.*, 2006; 2008). Conjoint analyses are a valuable tool for evaluating investment decisions because investment criteria can be measured conjointly, reflecting investor's holistic decisions (Dane & Pratt, 2007). Hence, for deciding in favour of or against an investment, trade-offs must be made between different criteria. This decision-making process can be modelled through a conjoint experiment. The advantages of using conjoint experiments over traditional post-hoc methods are increasingly recognised by researchers seeking to study decision-making behaviour in the entrepreneurial finance domain and have thus led to the increased use of the method (Block *et al.*, 2021; Hsu *et al.*, 2014; Valliere & Peterson, 2007; Silva, 2004; Shepherd & Zacharakis, 1999). Monika and Sharma (2015) recommend conjoint experiments as particularly suitable for researching VCs' selection criteria, making this methodology ideal for the purpose of our research.

For the purpose of this article, we applied a discrete choice-based conjoint (CBC) experiment. More specifically, cellular agriculture investors were required to make several choices between two hypothetical cellular agriculture investment opportunities that only differ in their specification of screening criteria (*e.g.* entrepreneurial spirit, degree of competition, and scalability). Prior to the experiment, participants were presented with two introductory slides explaining the decision task to ensure that they were assessing the same cellular agriculture ventures when making their decision (like Moritz *et al.*, 2021). Indeed, this is necessary because investors seek to align with the strategy between the companies in their portfolio and their investment approach during screening (Block *et al.*, 2021 with further resources). Therefore, it was made clear that the geographical, investment size, and strategic preferences of each hypothetical venture align the investor's interests (Block *et al.*, 2021; Moritz *et al.*, 2021). Moreover, we informed participants that the task aimed at the initial screening phase for a pre-selection of proposals, with a focus on evaluating early-stage cellular agriculture ventures (*i.e.* pre-seed, seed, and startup). The respondents to this experiment were required to make a discrete decision with respect to each investment case (*i.e.* yes or no) (Block *et al.*, 2021). This approach was beneficial in that the decision criteria can be assessed conjointly, and detailed descriptions of the investment possibilities can be provided to investors. Like any type of conjoint experiment, participants completed several decisions about hypothetical investments (15 in this case) based on predetermined screening criteria. In addition to a brief

[2] The conjoint experiment was designed using 'Sawtooth,' a commonly used tool for conducting and hosting conjoint analyses (*e.g.* Block *et al.*, 2021). See https://www.sawtoothsoftware.com/

description of the respondents' task, the information provided also contained a definition[3] of the seven investment screening criteria used. Each decision criterion had exactly two distinct attribute levels.

The attributes of the (founding) team were as follows:

- The entrepreneurial spirit is an ordinal attribute with levels ranging from low to high. It represents the cognitive, personality-related, and motivational characteristics, such as energy level, passion, and risk tolerance. Research emphasizes the importance of these characteristics (*e.g.* Block *et al.*, 2021; Hsu *et al.*, 2014), which was also confirmed in expert interviews.
- The professional background is a nominal attribute with levels indicating whether the team has a business or scientific/technical background. This attribute describes the professional background of the team, which significantly influences investor decisions (*e.g.* Block *et al.*, 2021; Franke *et al.*, 2008), as described in expert interviews.
- The track record is an ordinal attribute with levels ranging from weak to strong. It indicates whether the team has relevant previous experience, including an industry-related or entrepreneurial track record. A strong track record can serve as a quality signal for investors, and its importance is highlighted in various studies (*e.g.* Moritz *et al.*, 2021; Block *et al.*, 2019; Wessendorf *et al.*, 2019).

The attributes of the product were as follows:

- The proof of concept is an ordinal attribute with levels ranging from not (yet) provided to provided. It describes whether a validation of the concept is provided, which is crucial for demonstrating the feasibility of the project and serves as a quality signal for investors. The importance of this attribute is highlighted in research (Block *et al.*, 2021) and confirmed in expert interviews.
- The value-added of product and technology is an ordinal attribute with levels ranging from low to high. It describes the value added through the product or technology, such as cost reduction, quality improvement, or emission reduction. This attribute emphasizes competitive advantage, uniqueness, and innovation. Its importance is underscored in research (*e.g.* Moritz *et al.*, 2021; Block *et al.*, 2019) and expert interviews.
- The scalability is an ordinal attribute with levels ranging from low to high. It describes the potential for transfer and large-scale implementation of the product. This attribute focuses on the ease and challenges of scaling, considering factors like time, investment, and social impact. The importance of scalability is noted among cellular agriculture and impact investors (Block *et al.*, 2021).

The attributes of the market were as follows:

- The degree of competition is an ordinal attribute with levels ranging from low to high. It describes the intensity of competition among industry members during development. This attribute highlights the level of competition, especially during industry developments like patent races, and emphasizes the number of competitors vying for similar advancements in products and technologies. The significance of this attribute is emphasized in research, notably by a study on biotechnology startups (Jung *et al.*, 2011), and corroborated by expert interviews.

By ensuring that participants could holistically evaluate hypothetical investments in cellular agriculture, we utilised a full-profile CBC that contains all attributes at once (Block *et al.*, 2019). Considering the expected number of participants and the various attributes and attribute levels, we developed a set of 50 unique experimental designs,[4] in which each version presented a distinct sequence of decision tasks with different attribute level combinations. Each design comprised seven attributes with randomly assigned levels to two investment options. The cellular agriculture investors then had to decide which of the ventures they would like to invest in. To prevent respondents from being overwhelmed by too many choice tasks, we employed a reduced conjoint design (Chrzan & Orme, 2000). In this way, each participant had to perform 15 decisions, 13 of which were randomly assigned tasks, while the remaining

[3] We informed participants that they can always hover over each decision criterion to view a brief definition of that criterion.
[4] The number of questionnaire versions is recommended to be equal to the sample size so that all participants will obtain their own unique set of 13 choice tasks.

two served as so-called fixed tasks[5] that were the same for all participants.[6] Following the approach of prior research, we implemented the two fixed tasks as a proxy to check the test-retest reliability (here: the so-called hit rate method) of investors' decisions (Moritz *et al.*, 2021; Block *et al.*, 2021; Block *et al.*, 2019). For this purpose, the individual part-worth utilities based on the 13 randomly assigned choice tasks of each participant were assessed using hierarchical bayes (HB) validation tests.[7] Then, we computed the total utility of each decision maker and for each fixed task concept. The decision maker's estimated choice was the concept with the higher total utility in each of the two fixed tasks. Eventually, we compared the predicted choice of each participant to their actual choice. This led to a 69% accuracy rate, which was only slightly lower than in previous studies (see *e.g.* Moritz *et al.*, 2021; Block *et al.*, 2019).[8] On average, participants required 23 seconds to complete one choice task, although the first choice task took 48 seconds, which is consistent with other research (Block *et al.*, 2021; Moritz *et al.*, 2021). Moreover, since CBC experiments depended on a particular order in which the decision criteria were presented, they may be subject to different ordering effects (Chrzan, 1994). To address these effects, we employed three different measures based on Block *et al*. (2021). Firstly, we implemented a random order of decision tasks for all experimental designs to account for biases resulting from the order of the decision tasks. Secondly, we randomly arranged the two investment possibilities within the 50 distinct experimental designs within all decision tasks to circumvent the impact of the order of options in a decision task. Thirdly, to avoid the effect of how the attributes were ordered within one choice task, the order of attributes displayed to respondents was randomized across different respondents but kept constant within one respondent. In this way, we eliminated the effect of assigning the highest individual importance to the attribute at the top of the list. To ensure the external face validity of the experimental conjoint design, we asked two cellular agriculture investors to have a look at the investment decision task, including the introductory slide as well as the attributes and respective levels used. Both investors confirmed the experimental design in terms of task comprehensibility and screening criteria used. To analyse the relative importance of cellular agriculture investors' screening criteria, we applied a multi-level logit regression. The hypothetical investment decision made by participants represents the binary dependent variable (equals 1 if the respondent chose the respective venture and 0 if the respondent did not), while the attribute levels serve as the independent variable. A multi-level regression is performed as there are two levels in the data, which allows to nest each individual (first level) with multiple decisions of the whole sample (second level) (Block *et al.*, 2021; Aguinis *et al.*, 2013). This approach was required because both levels cannot be considered independent from each other.

RESEARCH METHODOLOGY

Table 1 presents our results of the multi-level logit regression analysis with regard to the full sample of cellular agriculture investors. The coefficients (also called part-worth or utility) express the importance that investors in cellular agriculture place on each attribute or attribute level in their investment decisions. The higher the coefficient, the more preferred the level. Hence, levels showing high utilities had a major positive impact on the respondents' decision to invest. As one level within each attribute functions as a reference group and is omitted in doing the estimation, and the raw utilities are zero-centred (sum to zero) within each attribute in the logit model, the omitted level was basically the negative of the other level. The results demonstrated that all attributes except the

[5] Also called holdout tasks.

[6] The fixed tasks specified are designed to reflect as realistic and common a combination of venture attributes as possible. For example, while a scientific/technical background is combined with a provided proof of concept because of the expertise to build a product is available, a business background is combined with a not yet provided proof of concept because the scientific/technical expertise is lacking.

[7] HB is a widely used approach for predicting individual choices. Within the model, the recommendation (see Orme, 2016) was followed to include obvious constraints on orders of part-worth utilities within attributes to better predict individual choices (i.e., high is preferred to low, strong is preferred to weak, and provided is preferred to not (yet) provided (proof of concept attribute)).

[8] Note that this retest reliability test is highly dependent on the sample size, the number of randomly assigned tasks and fixed tasks, and the specific design of the fixed tasks.

professional background of the team had a significant effect on the decision of investors in cellular agriculture (at least $p < 0.05$).

Table 1. Main effects of the conjoint analysis based on a multi-level logit regression

Investment criteria	Hypotheses	Coef. (*SE*)	t-Ratio
(Founding) Team criteria Entrepreneurial spirit: high *(reference group: low)*	H1a	0.620 (0.074)	8.370***
Professional background: scientific/technical *(reference group: business)*	H1b	0.103 (0.067)	1.523
Track record: strong *(reference group: weak)*	H1c	0.268 (0.069)	3.894***
Product criteria Proof of concept: provided *(reference group: not (yet) provided)*	H2a	0.192 (0.067)	2.841**
Value-added of product & technology: high *(reference group: low)*	H2b	0.587 (0.075)	7.853***
Scalability: high *(reference group: low)*	H2c	0.790 (0.078)	10.085***
Market criteria Degree of competition: low *(reference group: high)*	H3	0.190 (0.069)	2.773**
N (decisions) *N* (decision-makers) *χ2* *Df*		1.144 44 277 7	

Notes: This table presents the results of a multinomial logit model to estimate effects (here: coefficients which are also called log odds or (part-worth) utilities) for attribute levels. Coefficients and standard errors (SEs) are displayed. The coefficient of each attribute level reflects the importance decision-makers attribute to each criterion. For instance, the attribute level of the criterion scalability has a particularly high effect size. The chi-square of the overall model was 276.77 (relative chi-square is 39.54) and thus was statistically significant with $p < 0.01$ (df =7). We denoted significance levels with asterisks. Significant codes: $p < 0.01$ ***; $p < 0.05$ **
Source: own study.

To compare screening criteria and their importance perceived by decision-makers, we estimated the relative importance of each attribute by computing the ranges of attribute part-worth utilities (*i.e.* the difference between best and worst part worths per attribute) and normalising them to a sum of 100% (Block *et al.*, 2021; Sawtooth Software, n.d.). The subsequent discussion details the relative significance of each screening criterion: As the value of an investment criterion increased, so did its influence on a cellular agriculture investor's decision. For instance, the top three screening criteria (*i.e.* scalability (28.72%), entrepreneurial spirit (22.55%), and value-added of product and technology (21.35%) explain almost three-quarters of the investors' decisions in cellular agriculture (72.62%). Consequently, the likelihood of a cellular agriculture venture successfully passing the investor's screening phase increases if the cellular agriculture venture scores high on these three decision criteria. The least important screening criteria to investors in cellular agriculture represent the track record of the team (9.75%), proof of concept (6.97%), degree of competition (6.92%), and the professional background of the team (3.74%).

In view of the team-related criteria, the results demonstrated that investors in cellular agriculture attached the highest relative importance to the team's entrepreneurial spirit which is the second most important criterion overall. This finding supports Hypothesis 1a and is in line with previous

research highlighting the team's personality-related, cognitive, and motivational characteristics as key determinants of investment decisions (Block *et al.*, 2021; Wessendorf *et al.*, 2019 with further references). In contrast, we found no support for Hypothesis 1b. Accordingly, the field of the educational and professional background of the team had no significant impact on the decision of investors in cellular agriculture, suggesting that they do not favour a business or scientific/technical background. This finding is particularly interesting since talents with a background in science and technology are strongly needed in the cellular agriculture industry, and as experts have indicated a preference for a team's scientific/technical background in the conducted interviews. In the later stages of presenting the results, we will revisit Hypothesis 1b, examining the outcomes in greater detail and considering the professional background of the investors to present intriguing findings. However, we will first proceed with the main hypotheses.

Apart from this, the results support Hypothesis 1c. The team's track record (*i.e.* their industry-related experience or entrepreneurial experience) represents a strong quality signal as it has a significant impact on investors' decision-making in cellular agriculture and ranks in the centre in terms of relative importance among all criteria, which is in line with previous studies (Moritz *et al.*, 2021; Block *et al.*, 2019; Wessendorf *et al.*, 2019).

Within the product criteria category, the criterion proof of concept is given the least relative importance (ranks fifth overall) but still matters for investors in cellular agriculture. Thus, support was provided for Hypothesis 2a. The rather low relative importance attached to this attribute may be due to the fact that the focus of the sample is on the pre-seed and seed investment stages (59.1% and 75.0%, respectively), where the proof of concept is normally still under development and investors do not have many options besides accepting this reality as an early-stage investor. This illustrates the willingness of participating VCs to provide early support to founders with great ideas who have made limited progress on their products to date. Next, the results provide support for Hypothesis 2b by showing that VCs attach significant importance to the value-added for the customer or industry through the product and technology. This attribute ranks third (this is in line with previous studies, such as Moritz *et al.*, 2021; Block *et al.*, 2019), close behind the team's entrepreneurial spirit criterion, and addresses major challenges in the industry, including high production costs, high energy consumption (based on LCA studies), and product quality (*e.g.* to produce highly structured products like steaks with a high nutritional value). For example, while the described value-added in terms of cost reduction strongly addresses the current high costs of producing cellular agriculture products, the stated value-added in terms of emissions reductions underscores the desire of impact investors to achieve social and/or environmental returns in addition to financial returns (GFI, 2021d; Cambridge Associates & The Global Impact Investing Network, 2015).

Finally, the scalability criterion was given the highest relative importance by cellular agriculture investors. This is a very striking result compared to previous studies, which indicate a much lower importance (Block *et al.*, 2021; Moritz *et al.*, 2021; Block *et al.*, 2019). Therefore, this finding confirmed Hypothesis 2c and addressed a similar rationale as the value-added criterion, namely, the biggest challenge in cellular agriculture, which is to scale up the technology while reducing costs to the point where cellular agriculture products can be produced in large quantities (on an industrial scale) and marketed at reasonable prices (GFI, 2022a; Stephens *et al.*, 2018). Furthermore, this finding may once again address the importance of scalability in the context of impact investing as products from cellular agriculture can have a more positive impact on humans, animals, and the planet when the products are available in large quantities. Indeed, the aspect of whether the technology of the new venture is scalable and can be valuable in terms of solving pressing problems is stressed by all experts interviewed without exception.

Finally, regarding the market dimension, the findings demonstrate that cellular agriculture ventures with a low degree of competition are significantly more likely to be chosen by VCs than cellular agriculture ventures with a high degree of competition, which supports Hypothesis 3. Despite the penultimate overall ranking, this indicates that investors in cellular agriculture consider a venture's competitive environment. Furthermore, the rather low importance found for this criterion contradicts the results of Jung *et al.* (2011) where investors in the biotech industry attach the second

highest importance to the degree of competition attribute. Reasons for the discrepancy may relate to the fact that the biotech investor sample focused largely on established pharmaceutical companies. This sector is characterised by hyper-competition as the first drug that passes the testing phase and gets approved is likely to win the entire market (Jung *et al.*, 2011, with further references). This type of competition is certainly not the case in cellular agriculture yet, although players in this field are vying to file patents (Oxford Economics, 2021). Therefore, competition in this regard is appreciated, but otherwise, cellular agriculture is still a nascent industry with plenty of room for additional players to resolve existing uncertainties with the technology and make cellular agriculture products available to the masses.

With respect to the relative importance of the main decision criteria categories, it appears that product-related criteria are rated as the most important category with 57.04% (M = 19.01%), followed by team-related criteria with 36.04% (M = 12.01%), and the market-related criterion degree of competition with 6.92%. Consequently, Hypothesis 4a is not supported. Instead, the analysis shows a contrary relationship, which means that product-related criteria are preferred over team-related criteria. This result is of particular interest in light of the ongoing debate as to whether the jockey (entrepreneur) or the horse (product) drives the decision of VCs (Moritz *et al.*, 2021; Block *et al.*, 2019; Kaplan *et al.*, 2009; Macmillan *et al.*, 1985). In recent years, research on VCs' decision criteria regarding early-stage ventures has tended to find a consensus on the higher importance of the entrepreneur/team (Wessendorf *et al.*, 2019). However, the results of this study suggest that the opposite is true – product criteria are preferred over team criteria – for the cellular agriculture industry. This could be due to the pressing challenges facing this emerging industry, such as scaling technology, reducing costs, and increasing overall production efficiency to reduce energy consumption (GFI, 2022a; Stephens *et al.*, 2018). However, we should interpret this should with caution as the selection of decision criteria for the CBC experiment has a large impact with regard to which criteria category is more relevant. Finally, support is provided for Hypothesis 4b, as investors in cellular agriculture perceive the product dimension of decision criteria as more important than the market dimension. However, this requires cautious interpretation as only one market criterion was used in this study and there was also a team criterion (professional background), which investors considered even less relevant.

As previously described, we initially found no confirmation for Hypothesis 1b and observed in the results that the team's technical background did not appear to be a significant selection criterion from the investors' perspective. At first glance, this could support the findings of Wessendorf *et al.* (2019), which suggest that VCs tend to favour heterogeneous skills, and therefore, querying homogeneous criteria shows no significance. In contrast, Franke *et al.* (2006) empirically found that investors tend to exhibit a similarity bias, often preferring skills in founding teams that they themselves possess. Since exactly half of the investors in the sample had a business background and the other half a scientific/technical one, we wanted to examine this question in greater detail. To explore this finding, we performed an additional multi-level logit regression for two separate groups: investors with a business background and investors with a scientific/technical background (Table 2). The analysis revealed that albeit investors with a background in business had no specific preference for the professional background of the team (p = 0.445), those with a scientific/technical background showed a significantly higher preference for a founding team with a scientific/technical background ($p < 0.05$), thus providing support for the similarity bias documented in Franke *et al.* (2006). Interestingly, it appears that the product criterion proof of concept (Hypothesis H2a) loses its significance after separately examining the two investor groups. Similarly, it shows that the market criterion degree of competition (Hypothesis H3) is evidently important only for investors with a scientific/technical background, and not for those with a business background. However, we should interpret this cautiously due to the now smaller group size.

Table 2. Results of the conjoint analysis with comparison across investors with business and scientific/technical backgrounds

Model **Sample** **Investment criteria**	**(1)** **Business** **Coef. (*SE*)**	**(2)** **Scientific/technical** **Coef. (*SE*)**
(Founding) Team criteria Entrepreneurial spirit: high *(reference group: low)*	0.457 (0.100) ***	0.785 (0.116) ***
Professional background: scientific/technical *(reference group: business)*	-0.076 (0.093)	0.275 (0.103) **
Track record: strong *(reference group: weak)*	0.232 (0.093) **	0.330 (0.107) **
Product criteria Proof of concept: provided *(reference group: not (yet) provided)*	0.179 (0.093)	0.239 (0.103)
Value-added of product & technology: high *(reference group: low)*	0.587 (0.075) ***	0.590 (0.111) ***
Scalability: high *(reference group: low)*	0.785 (0.109) ***	0.859 (0.121) ***
Market criteria Degree of competition: low *(reference group: high)*	0.144 (0.095)	0.249 (0.103) **
N (decisions)	572	572
N (decision-makers)	22	22
χ2	130	158
Df	7	7

Notes: This table presents the results of a multinomial logit model to estimate effects. Coefficients and standard errors (SEs) are displayed. The coefficient of each attribute level reflects the importance decision-makers attribute to each criterion. Model 1 consists of participants with a business background and model 2 represents participants without a business background. The chi-squares show that both models are statistically significant with $p < 0.01$ (df =7). Significant codes: $p < 0.01$ ***; $p < 0.05$ **
Source: own study.

CONCLUSIONS

Cellular agriculture investment is gaining strong momentum recently and is evolving from a niche market. This research is the first to explore cellular agriculture investors' investment criteria when screening early-stage ventures in the cellular agriculture domain. Drawing on a multi-method design based on previous research on VC decision-making, expert interviews, and a survey-based CBC experiment, we identified the relevant screening criteria of VCs in cellular agriculture and examined their relative importance. The experiment involved 44 individual investors, representing approximately 10% of the total population and thus being representative. Our findings differ from those previously identified for non-specific industries, but as this is one of the first studies on investment criteria in cellular agriculture, it provides an interesting starting point for future research.

The results show that cellular agriculture investors attach the highest relative importance by far to the product-related criterion of scalability (28.72%), the team-related criterion of the entrepreneurial spirit of the founding team (22.55%), and the product-related criterion value-added of the product and technology (21.35%). These results reflect the major challenges currently facing the cellular agriculture industry, namely increasing scalability, and reducing the cost of the technology. The remaining criteria of lower importance are the track record of the founding team (9.75%), the proof of concept (6.97%), the degree of competition (6.92%), and the professional background of the founding team (3.74%). These findings distinguish cellular agriculture from non-industry-specific

studies, particularly with respect to the relevance of the scalability criterion. Thus, while team-related criteria often outweigh product-related criteria in previous studies (*e.g.* Block *et al.*, 2021; Wessendorf *et al.*, 2019; Franke *et al.*, 2008; Shepherd *et al.*, 2000), product-related criteria are most preferred in this study, followed by team-related criteria and the market criterion. This outcome contributes to the ongoing jockey (entrepreneur) versus horse (product) debate (Moritz *et al.*, 2021; Block *et al.*, 2019; Kaplan *et al.*, 2009; Macmillan *et al.*, 1985) by demonstrating that some of the differences could be attributed to the specific industry under investigation.

This study specifically addresses the most challenging aspect of fundraising for new ventures in cellular agriculture, namely the difficulty of reaching target investors (GFI, 2021a). By shedding light on the most important venture attributes VCs seek in their preselection, new ventures in cellular agriculture can leverage the information about the most important attributes to tailor their investment proposal and increase their chances of passing the screening phase, which fails to about 80% (Petty & Gruber, 2011). Further implications for practice address investors in cellular agriculture and policymakers. Cellular agriculture investors can use the results to benchmark their internal organisational policies with those of other investors in the field. Finally, policymakers who aim to nurture the cellular agriculture ecosystem are suggested to fund open-access R&D and support the creation of critical infrastructure to advance the development of cellular agriculture for the benefit of humans, animals, and the planet.

Cellular agriculture is one of the most exciting developments in the startup and VC sectors due to its innovative nature and potential to feed an ever-growing global population. Nevertheless, this development is not without its drawbacks. From a consumer perspective, cellular agriculture is challenging because many consumers are unfamiliar with the term and require significant education from providers (The Environmental Law Institute and New Harvest, 2017). Furthermore, the societal roles of animal production beyond nutrition, including ecosystem services, co-product benefits, contributions to livelihoods, cultural significance, and traditional agricultural jobs, could be lost (Wood *et al.*, 2023).

This article acknowledges limitations related to the CBC experiment. While the conjoint method used addresses some research issues, it has its own challenges, including construct validity and preselection bias (Block *et al.*, 2021; Shepherd & Zacharakis, 1999). There's also a concern about external validity, as decision-makers face hypothetical ventures. Although efforts were made to ensure construct validity through expert interviews and validation by industry professionals, the hypothetical nature of the scenarios could limit external validity. Moreover, the sample size, although adequate for the purposes of this study, remains relatively small and specific to early-stage investors, which might not generalize across different stages of investment or types of investors. Furthermore, the study's focus on specific criteria may have excluded other potentially relevant factors, such as intellectual property or regulatory considerations, which could influence investment decisions. Another limitation is the potential pre-selection bias, as participants were already engaged in the cellular agriculture sector, possibly skewing the results towards industry-specific preferences. In the CBC experiment, decision-makers sometimes had to choose between equally appealing investments, though this method is comparable in effectiveness to other conjoint methods (Elrod *et al.*, 1992). Given this study's insights into decision criteria in cellular agriculture, further research is needed, exploring various aspects such as different investment stages, types of investors, and specific cellular agriculture categories. Longitudinal studies could provide deeper insights into how investment criteria evolve over time as ventures progress from early to later stages. Expanding the sample to include a more diverse group of investors, such as corporate VCs, family offices, and impact investors, could offer a more comprehensive understanding of the investment landscape in cellular agriculture. Investigating the role of other critical factors, such as intellectual property, regulatory environments, and market dynamics, would further enrich the understanding of VC decision-making criteria. Similarly, the character strengths of founders, which have been proven to influence business success, could also be considered (Zbierowski & Gojny-Zbierowska, 2022). Employing alternative research methodologies, such as analysing archival data from leading VC firms or conducting in-depth case studies, could complement the findings from conjoint analysis and enhance the result's robustness. Examining the impact of investor characteristics, such as their prior experience, risk tolerance, and strategic focus, on their decision-making processes could provide valuable insights. Finally, comparative studies between different emerging industries

could reveal whether the findings in cellular agriculture are unique or part of a broader trend in venture capital investment strategies.

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Conflict of Interest

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