

SYNthesis BioVentures - Newsletter no. 4 (December 2024)

Dear SYNthesis BioVentures followers,

We welcome you to the fourth newsletter of SYNthesis BioVentures ("SYNBV", or "Fund"). As previously noted, we will cover updates to the fund as well as highlight the science we find exciting and investable. As always, feedback is sought and welcome.

Fund Update:

1. Having called the capital in August, most of which was earmarked for our investment into Skin2Neuron (see Newsletter no. 3), the Fund has recently placed the remainder of the call into its fourth investment, a A\$1.2M equity investment via a SAFE note in two tranches into Qubigen Pty Ltd. Details on the technology behind Qubigen are in the investment snapshot below.

The investment is divided into two tranches, with the first deployed upon close in December 2024, and the remainder to be deployed on achievement of specific performance milestones.

As specified in the agreements, the "first tranche financing will be used to i) apply Presagen's Federated AI Methodology (FAIM) to drug development relevant datasets, and to further demonstrate it has been able to ii) integrate FAIM with Qubist's drug development algorithms, and that further it has been able to iii) access, appropriately format, and use collaborative companies' data sets so as to be able to iv) allow the Qubist algorithm to improve sufficiently to generate Valid Drug Development Candidates (VDDCs) based on at least one collaborator's data. VDDCs are candidates deemed by the investor to be -as good or -better than the current companies' lead molecules."

With the technological feasibility proven, the second tranche will be deployed with the capital to be used to give the company runway to engage with additional pharma partners and raise its A round of financing. SYNBV is the only investor in the seed round, and assuming the technical milestones are reached, we anticipate follow on financing to be secured by late Q3 of CY25 at a significant uplift.

2. The fund is also extending additional bridge financing to Aculeus therapeutics. As a reminder, Aculeus is developing ACU-0943, a Best-In-Class STING agonist which works by switching on certain classes of tumour killing immune cells. Aculeus has made significant progress towards starting its clinical trial program at PeterMac in early 2025, focusing on haematological cancers. The funds deployed will allow the company to finalise the production of clinic ready vials of its lead drug candidate ahead of those trials. The company is currently raising \$10M, of which the fund will participate with up to \$3M, inclusive of the current deployment.

Investment Snapshot – Qubigen

Snapshot:

Qubigen, A leader in federated, AI-driven quantum chemistry drug design

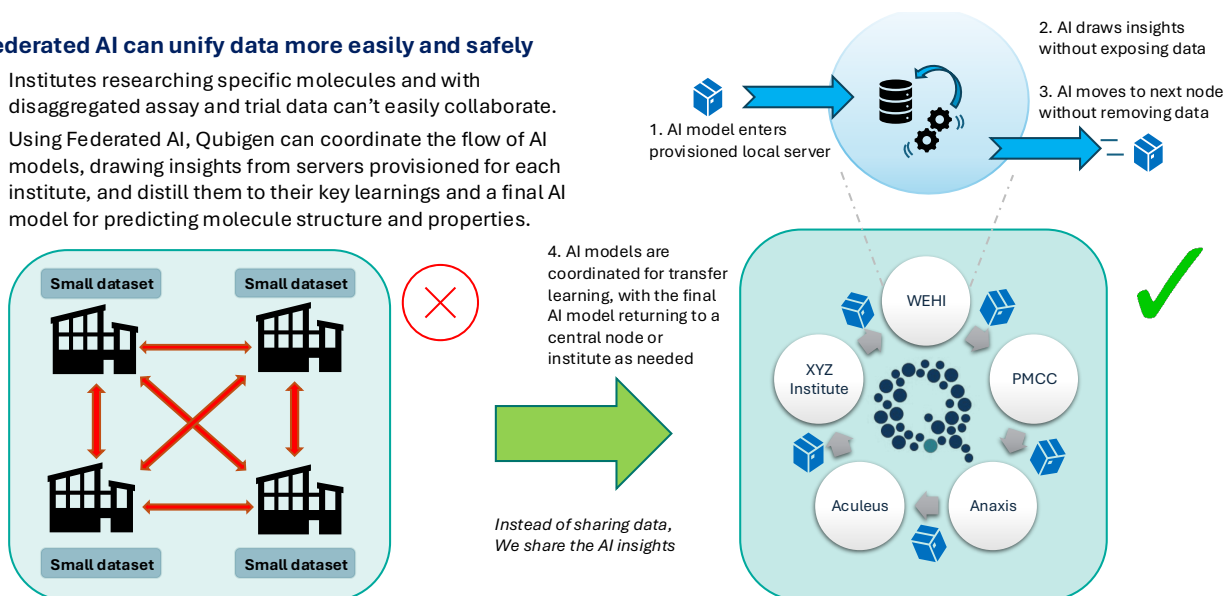
The transaction above marks the merger of Qubist Molecular Design, known for its expertise in AI driven quantum chemistry and large database screening, and Presagen, a leader in healthcare federated AI solutions, to create Qubigen. Qubigen is the first AI drug design company

combining cutting edge chemistry with federated AI, which allows for disaggregated, “beyond the firewall” algorithm learning. By combining the expertise of these organisations, Qubigen estimates it will be able to accelerate early drug discovery (AKA “hit to lead development”) where molecules are either screened or designed to interact with specific biological pathways by two orders of magnitude (i.e. $\sim 1/100$ of the time currently required). Further application of the methodology to lead optimisation (where drug molecules are further optimised for safety and efficacy) is estimated to accelerate this part of the process by an order of magnitude (i.e. $\sim 1/10$ of the time).

The key to this is the application of federated AI. Federated AI is meant to overcome the inherent problem facing any AI developer: the lack of sufficient non-proprietary data to “teach” algorithms and optimise their performance. Thus, the difficulty in obtaining data required to teach a quantum chemistry AI algorithm is much higher than for the amounts of written media that was required to teach Large Language Models such as ChatGPT. Federated AI does this by allowing the algorithm to access proprietary databases (e.g. on pharma company servers) and “learn” without taking any back any of the proprietary data, much like an avid reader in a reading library. Based on industry engagement, Qubigen estimates that by removing the risk of sharing of proprietary information, pharma companies will be much less hesitant to enter commercial collaborations and that this will ultimately allow all its clients to benefit from each other’s drug development efforts through the improvement of the company’s drug design algorithm.

Federated AI can unify data more easily and safely

- Institutes researching specific molecules and with disaggregated assay and trial data can’t easily collaborate.
- Using Federated AI, Qubigen can coordinate the flow of AI models, drawing insights from servers provisioned for each institute, and distill them to their key learnings and a final AI model for predicting molecule structure and properties.



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Once translating “virtual” drug candidates to “actual” drugs, the venture will be supported by SYNthesis Research’ in house expertise in drug development, clinical research, regulatory affairs, and biotech commercialisation and will benefit from organic collaborations within SYNthesis BioVentures’ existing portfolio.