

Unity's efforts do not age well



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Research into biological pathways associated with ageing has attracted much attention, and [funding](#), but much work remains early and in the hands of private companies. With a focus on "senolytics" and a Nasdaq listing, Unity Biotech represented a rare opportunity for investors to dabble in this nascent field, though the failure of the company's only clinical-stage candidate shows that this remains high-risk. UBX0101 was being tested in moderate to severe painful osteoarthritis of the knee; a [phase II study](#) found no statistically significant difference between any treatment arm and placebo. The primary endpoint was Womac-A, a questionnaire to assess pain, and the company blamed an unusually large placebo effect for the outcome. Unity's focus is senescent cells, which have stopped dividing and have been linked to a number of age-related diseases. UBX0101 was said to inhibit MDM2/p53 protein interaction, which the company claimed could eliminate senescent cells. A second project, UBX1325, is expected to enter the clinic in ophthalmology later this year. This has a different mechanism, targeting an apoptosis regulatory protein, Bcl-xL, but the 62% plunge in Unity stock this morning suggests that little confidence remains in the company's approach.

Unity's phase II failure ([NCT04129944](#))

UBX0101 arm	Placebo-adjusted change	P value
0.5mg (n = 45)	0.093	0.5222
2.0mg (n = 46)	-0.035	0.8069
4.0mg (n = 46)	-0.002	0.987

Primary endpoint: change from baseline in Womac-A (0-4 scale) at week 12. Source: [press release](#).

Selected anti-ageing companies

Company	Most advanced product	MoA	Note
Unity Biotechnology	UBX0101	p53/MDM2 inhibition	Ph2 clinical failure in osteoarthritis
Samumed	Lorecivivint	Wnt/beta-catenin signalling pathway modulator	Private, ph3 osteoarthritis study , primary completion 2021
Celularity	PDA-001	Natural killer cell therapy	Private (Celgene spinout), Crohn's disease said to be ph3-ready
Restorbio	RBT101 + sirolimus	mTORC1 inhibitors	Respiratory illness study failed in 2019 , Ph1b/2a Parkinson's disease study ongoing
Calico	Research project	Undisclosed	Private, backed by Google

Source: company websites.

