

Regeneron's second cell therapy foray



[Jacob Plieth](#)

Regeneron, best known for effectively serving as Sanofi's R&D division, seems an unlikely cell therapy player. But the discovery deal it signed yesterday with Bluebird Bio marks its second in the field of engineered T-cell receptor (TCR) therapeutics. The Bluebird tie-up saw Regeneron take a \$100m premium-priced equity stake in its partner, and will focus on six undisclosed targets. It came after Regeneron, two years ago, revealed an allogeneic CAR-T and engineered TCR alliance with the private group Adicet Bio - at the time famous for being run by the former chief executive of Kite Pharma, Aya Jakobovits. In development terms engineered TCRs have seriously lagged behind CARs; because TCRs only recognise antigens presented on a target cell's major histocompatibility complex they are limited by the fact that in humans many different haplotypes of this complex exist, and therefore each product has to be matched appropriately. All the current TCR work is at the early clinical stage, and Bluebird itself already has a separate discovery alliance, with Germany's Medigene.

Selected engineered TCR projects

Company/group	Project	Target	Status	Trial ID
Adaptimmune	MAGE-A10 TCR	MAGE A10	Phase I	NCT02592577
	MAGE-A4 TCR	MAGE A4	Phase I	NCT03132922
	AFP TCR	Alpha-fetoprotein	Phase I	NCT03132792
Gilead	KITE-718	MAGE A3/A6	Phase I	NCT03139370
	KITE-439	HPV-16 E7	Phase I	NCT02858310
	KRAS TCR	G12V variant of mutated RAS	Phase I	NCT03190941
	SSX2 TCR	SSX2	Preclinical	NA
NCI (NIH)	HPV-16 E6 TCR	HPV-16 E6	Phase I	NCT03197025
	MAGE A3 TCR	MAGE A3	Phase I	NCT02153905
Glaxosmithkline	GSK3377794	NY-ESO-1	Phase I	NCT02992743
	PRAME TCR	PRAME	Preclinical	NA
Celgene	JTCR016	WT-1	Phase I	NCT02408016
Bellicum	BPX-701	PRAME (rimiducid-activated suicide switch)	Phase I	NCT02743611
Cell Medica	CMD-602	WT-1	Phase I	NCT02550535
	CMD-601	Survivin	Preclinical	NA
Tmunity	NYCE T cells	NY-ESO-1 (Crispr-edited, TCR-deleted, PD-1-deleted)	Phase I	NCT03399448
Immatics	IMA201	Undisclosed	Phase I	NCT03247309
Medigene	MDG1011	PRAME	Phase I	NCT03503968
	TCR-IIT	MAGE A1	Preclinical	NA
Medigene/Bluebird	None	Four undisclosed targets	Preclinical	NA
Regeneron/Adicet Bio	None	Undisclosed targets for allogeneic use	Preclinical	NA
Regeneron/Bluebird	None	Six undisclosed targets	Preclinical	NA

Source: company filings & clinicaltrials.gov.

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Evaluate HQ
[44-\(0\)20-7377-0800](tel:+14152073770)

Evaluate Americas
[+1-617-573-9450](tel:+16175739450)

Evaluate APAC
[+81-\(0\)80-1164-4754](tel:+818011644754)

