28 & 29
SEPTIEMBRE
2023

6º CURSO PRÁCTICO
CITOMETRÍA DE FLUJO

Práctica de seguimiento de nuevas terapias

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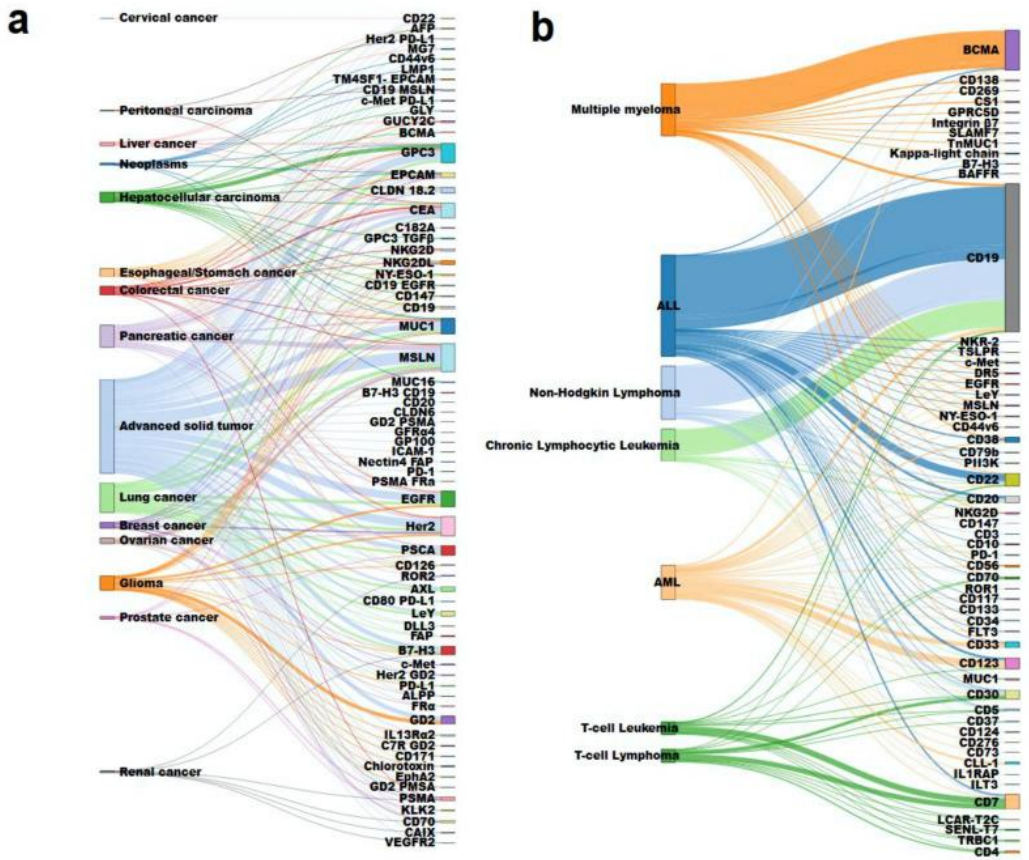
CIC Centro de Investigación del Cáncer
VNiVERSiDAD D SALAMANCA
EuroFlow
IBSALO Instituto de Investigación Biomédica de Salamanca

Monitoring CAR-T cell therapy by NGF

6 products
approved by FDA & EMA

CD19				BCMA (CD269)	
Kymriah	Yescarta	Tecartus	Breyanzi	Abecma	Carvykti
	BCP-ALL DLBCL Follicular Mantle-cell			MM	

1561 CAR-T cells clinical trials



Barros et al. 2022

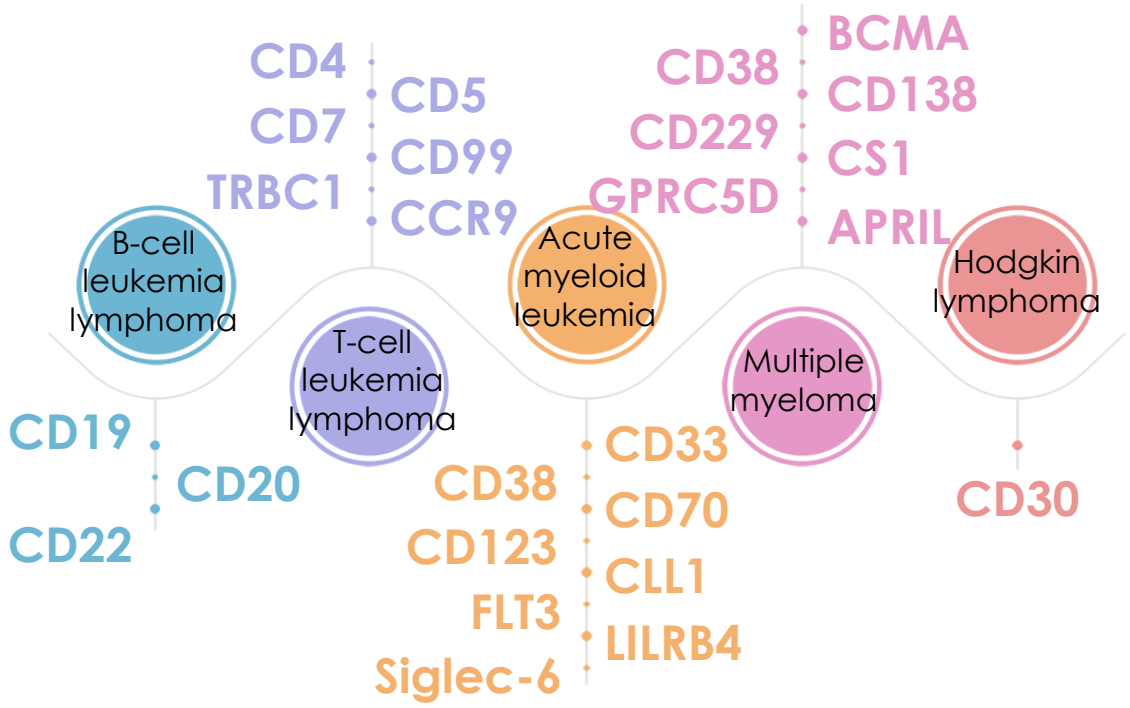
Detection of CD19 CAR-T cells by NGF

Identify CAR target

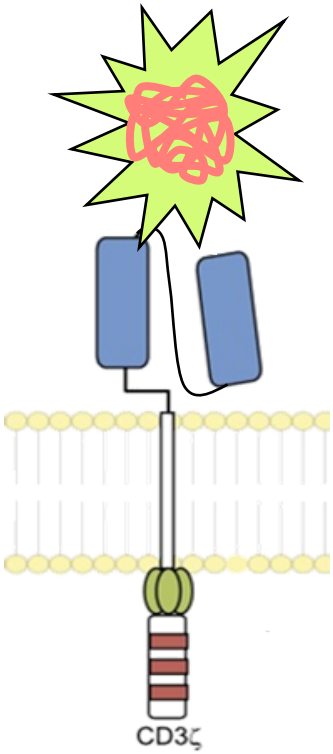
Recommended sites for CAR-T cell detection products:

https://www.acrobiosystems.com/

https://www.miltenyibiotec.com/



Detection of CD19 CAR-T cells by NGF: different methods



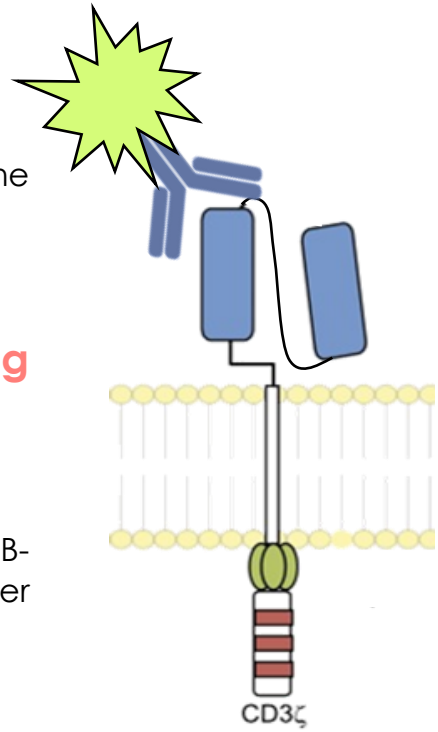
PROTEIN

CD19 protein

Universal means of detecting CARs with the same target antigens

Confirms that the CAR is **capable of binding** to its cognate antigen

Simultaneous labelling with **anti-CD19** for B-cell identification not feasible. Need for a longer two-step technique.



ANTIBODY

Anti-FMC63 scFv

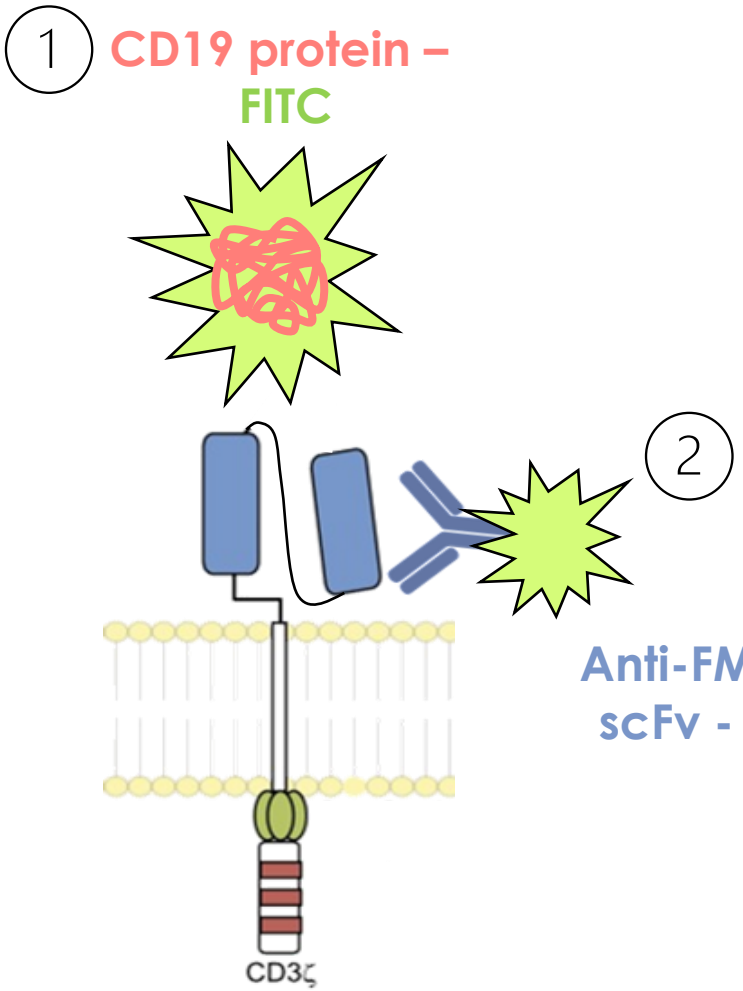
Only allows detection of CAR anti-CD19 scFv derived from FMC63 clone.

Lack of information on the CAR binding ability

Usually, **better** discriminating **signal**

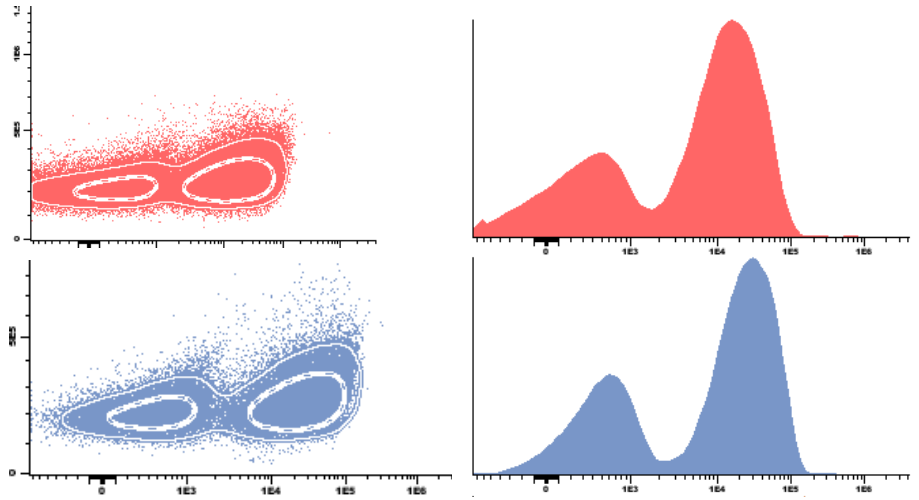
Simultaneous labelling with **anti-CD19** for B-cell identification feasible.

Detection of CD19 CAR-T cells by NGF: different methods



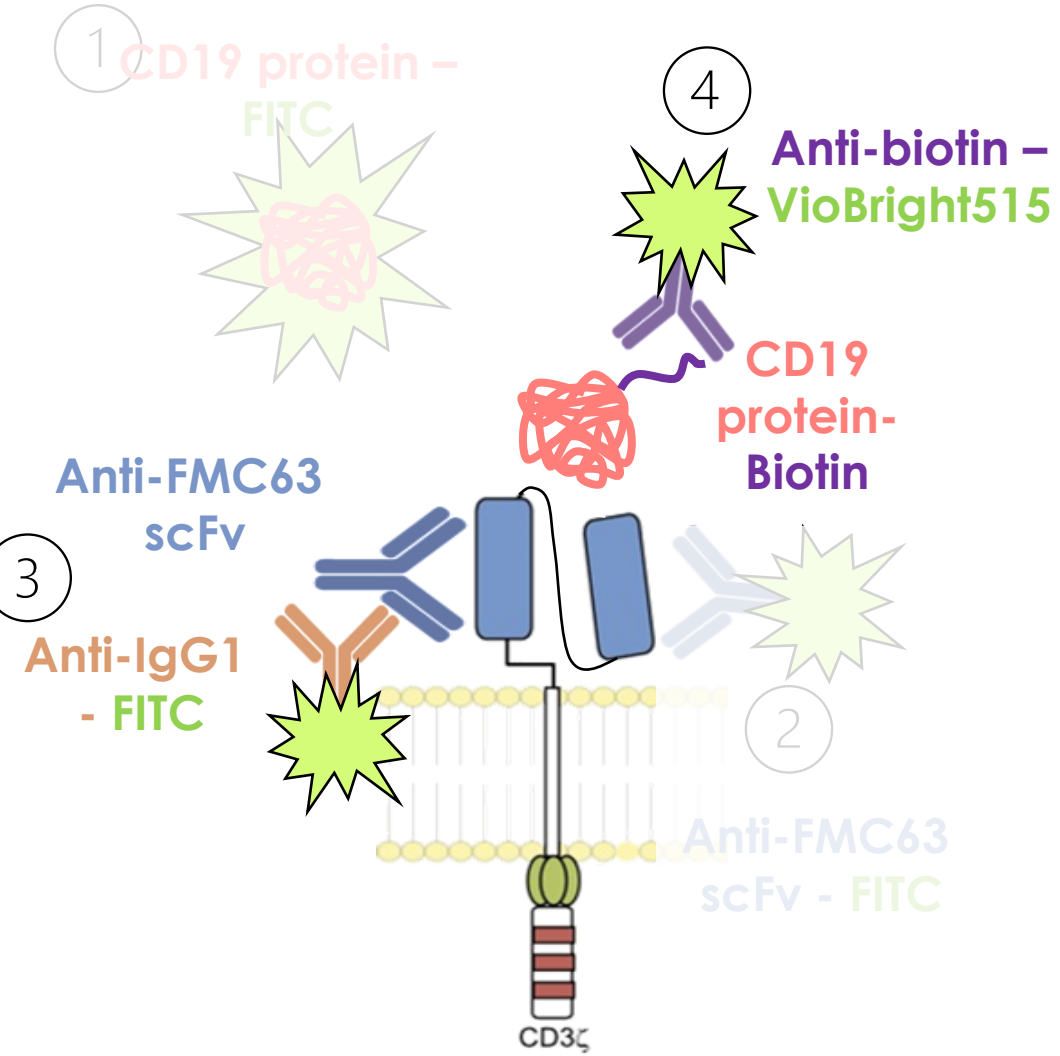
1 CD19 protein – FITC

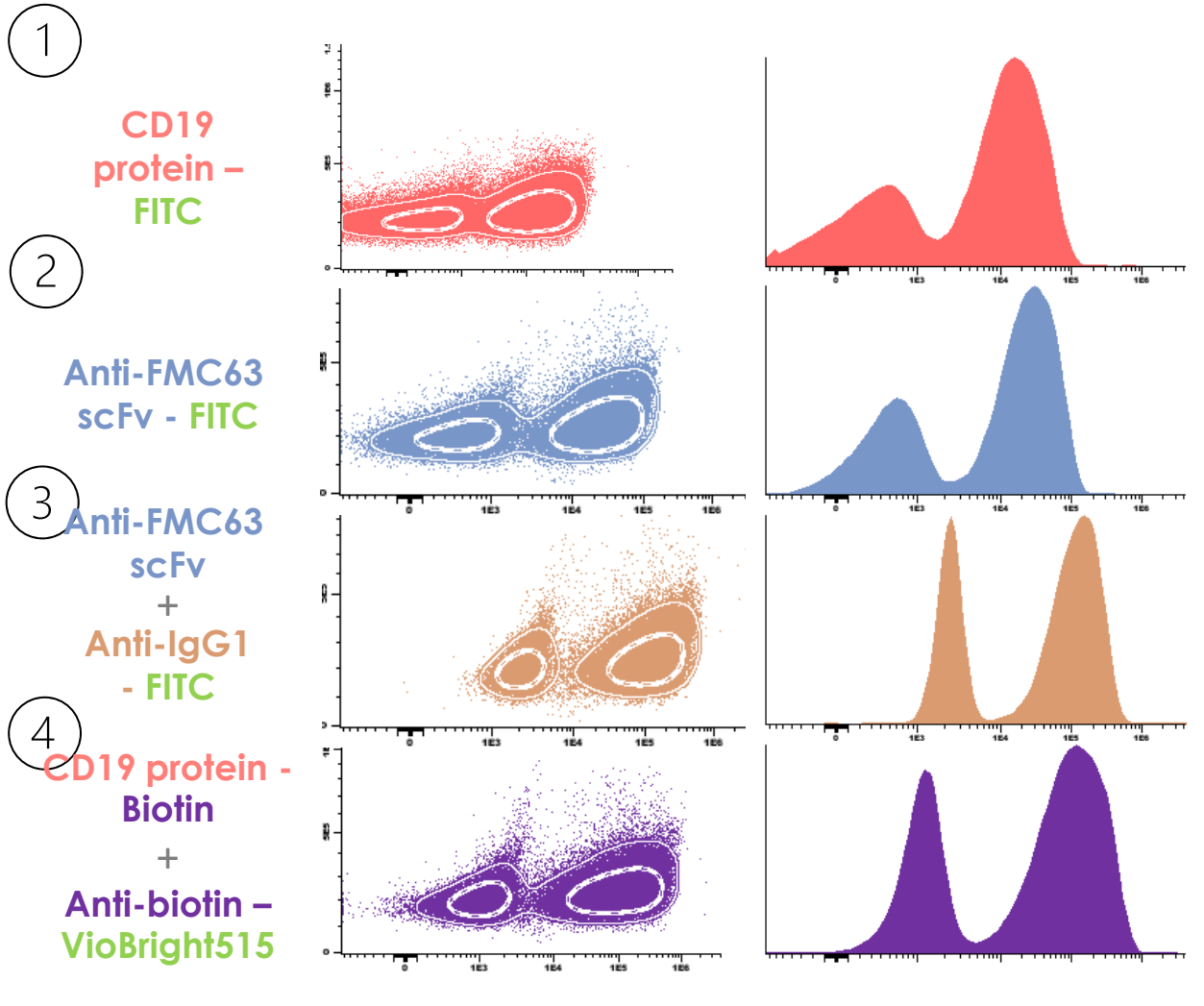
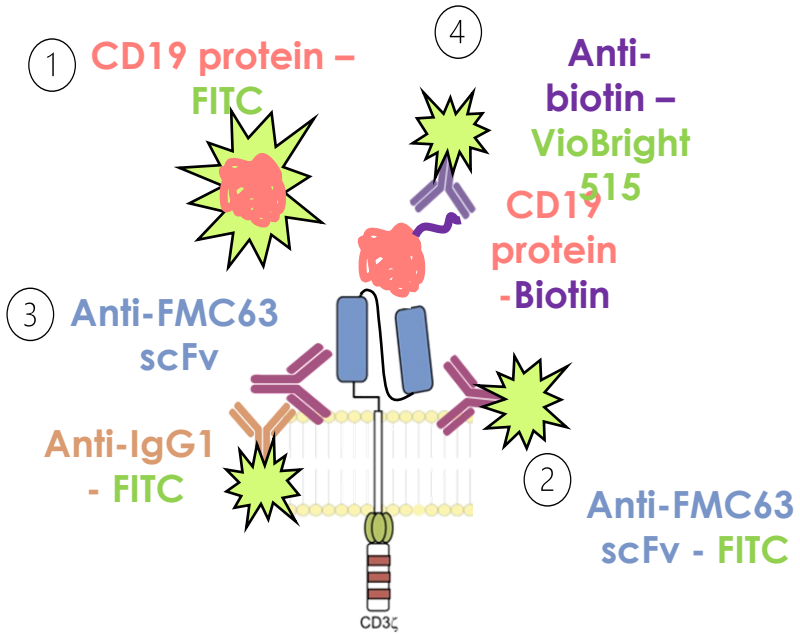
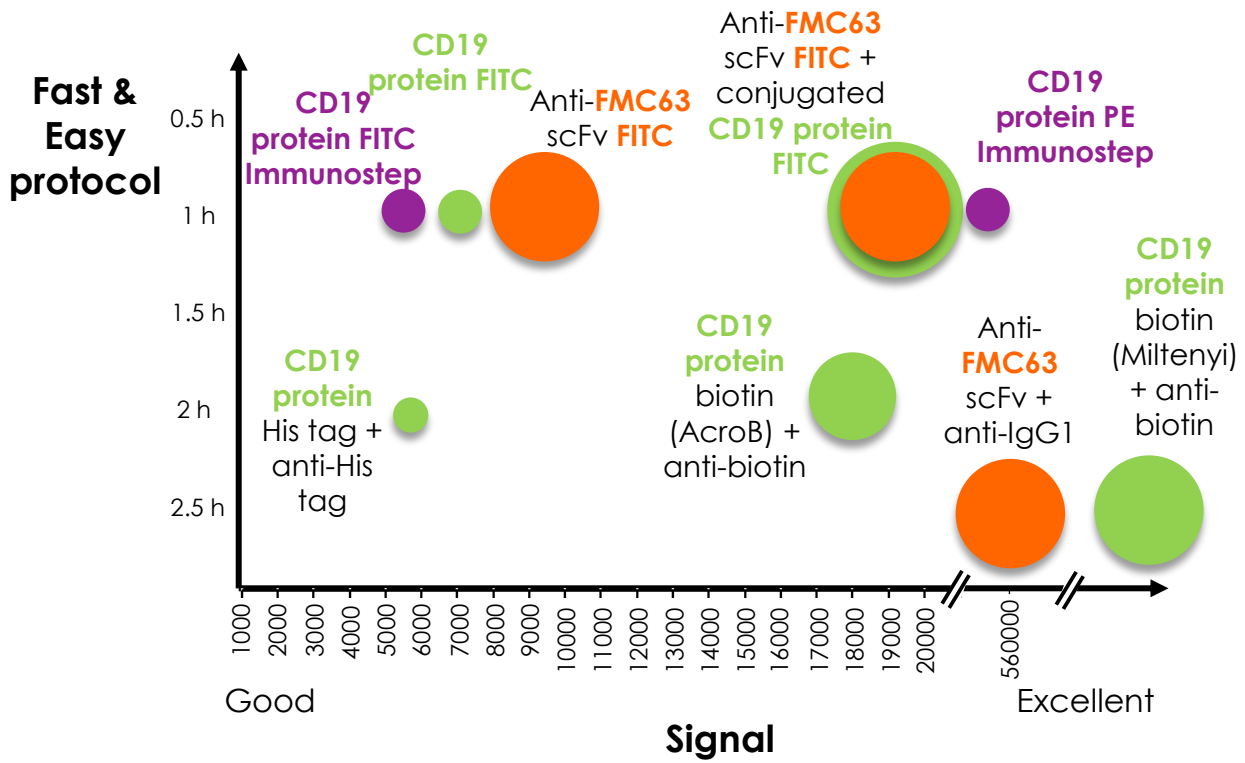
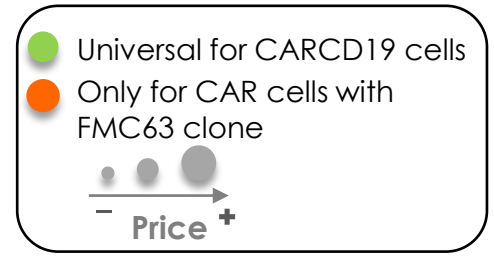
2 Anti-FMC63 scFv - FITC



FITC / VioBright515

Detection of CD19 CAR-T cells by NGF: different methods





Monitoring CD19 CAR-T cells by NGF: advantages and limitations of the different approaches