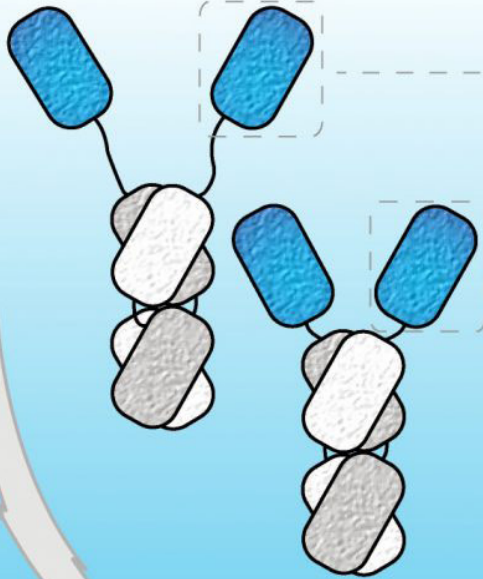




# QUALITY IN ANTIBODIES

**Heavy Chain-only Abs (HcAbs)**  
2 heavy chains, no light chains, ~90 kDa



**VHH/sdAb/Nb**  
single domain, 12-15 kDa



>20 Years VHH Experience

Service and Own Pipeline

Customized Approach

Dedicated Team

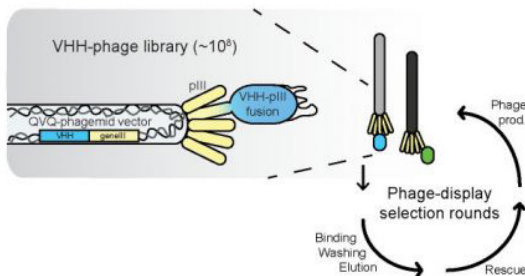
>95% Success  
(lead development)

Global Service

[www.qvquality.com](http://www.qvquality.com)

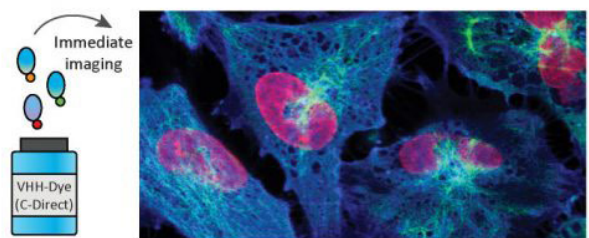
## Lead development

- o Customized Projects
- o Immunization / Immune Response
- o Phage Library Construction
- o Phage Display Panning
- o VHH Binding
- o Epitope Binning
- o Ligand/Cross Competition
- o Bio-Informatics



## Sales

- o Validated, Recombinant VHH Protein
- o Mono- / Multivalent Constructs
- o Production: *E.coli* and *S.cerevisiae*
- o Affinity Purification
- o VHH in PBS / Freeze Dried VHH
- o C-terminal C-Direct Tag
- o Directional Conjugation:  
*Biotin, Fluorescent Dyes, Chelators*



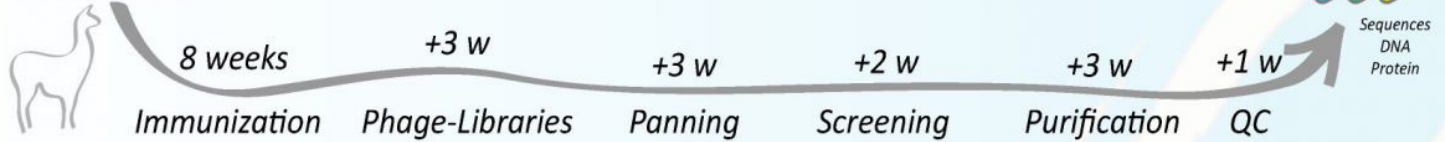
QVQ Partners:



Visiting Address:  
Androclusbuilding, Room O270  
Yalelaan 1  
3584 CL Utrecht  
The Netherlands

## Standard Lead Development Project

### Consultation



## Off The Shelf VHH Protein

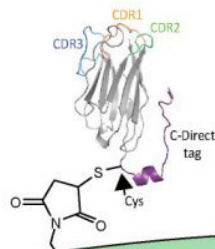
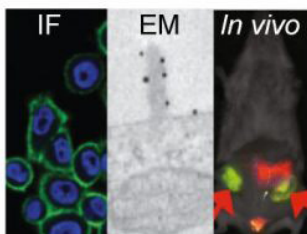
(available as tagless C-Direct tagged protein in PBS or freeze dried)

Target	Products	Target	Products
A $\beta$	Q42, Q43	EpCam	Q66
BACE	Q41	Fibronectin	Q63
BMP2/4	Q36	Her2	Q16-Q19
BMP4	Q35	HIV gp120	Q1-Q3, Q7, Q9, Q53
BMP6	Q33, Q34	HIV gp41	Q6, Q8, Q54
BMP7	Q31, Q32	HIV p24	Q76, Q82, Q83
CAIX	Q25-Q30	ITGB1	Q75
CD4	Q12-Q15	KDEL	Q50
Clusterin	Q37-Q40, Q77-Q80	MPO	Q44-Q47
cMet	Q22	NCAM	Q55
CXCR4	Q84, Q85	PSA	Q61
DCSign	Q51	TfR	Q52, Q81
DKK1	Q71-Q72	uPAR	Q88
DNABII	Q64-Q65, Q8-7	VEGF	Q67
DUX4	Q56-Q58	Vimentin	Q60
EGFR	Q44, Q86	VLA-3	Q48, Q49

## Conjugates For Functionalization



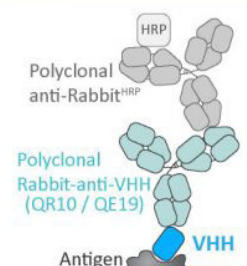
- Proprietary C-Direct Tag
- Directional Conjugation
- Maleimide Chemistry



Biotin  
Fluorescent Dyes  
Chelators for Radioisotopes  
Custom Conjugation

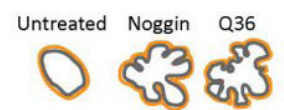
## Anti-VHH Antibodies

- QR10 / QE19
- Broad applicability
- Low cross-reactivity
- Serum / Protein A Purified



## Noggin Replacer For Organoids

- Q36
- Binds BMP2/4
- Mimics Noggin activity by inhibiting BMPR1



Calpe et al., (2015)  
Mol Cancer Ther 14:2527-40