Comparison of Activin A vial recovery from Qkine and alternative suppliers

Supplier	Source	Formulation	Quantity purchased (µg)	Yield (µg)	Yield (%)
A	*E. coli*	Animal free, lyophilized	2 x 10	17.2	86
B	*E. coli*	Animal free, lyophilized	2 x 10	15.2	76
B	Insect	Lyophilized from 10mM Sodium Citrate pH 3.0	2 x 10	20	100
C	CHO	research grade, lyophilized, stabilizer mannitol and trehalose	2 x 10	11.6	58
C	CHO	premium grade, lyophilized, stabilizer mannitol and trehalose	2 x 10	11.1	56
D	CHO	lyophilized (no carrier)	2 x 10	10	50
E	Plant	lyophilized (no carrier)	2 x 5	13.5	135
Qkine	*E. coli*	Animal free, lyophilized, carrier free	25	25.5	102

When reconstituting growth factors and preparing media, it is often taken for granted that the amount of protein stated on the vial accurately reflects the yield of protein from the vial. This should be a safe assumption but unfortunately, this is not always the case.

Stem cells are notoriously challenging to work with and variability in protein recovery is particularly problematic as it is not feasible in most stem cell labs to correct for the protein amount in the vial prior to making up media.

- Protein recovery yields ranged from 50% - 135% across 8 samples of Activin A provided by different suppliers.
- The yield of animal-free Activin A (Qk001, expressed in *E. coli*) manufactured by Qkine was 102%.

The wide variation in yields highlights the importance of measuring vial recovery as part of a standard QC process. Qkine maintains an industry-leading vial recovery standard in the range of 95-115%. As part of our research and development process, we experimentally define the correct reconstitution buffer tailored to each specific protein and provide this at no additional cost to our customers, simplifying laboratory workflows and media preparation.

Summary of Activin A vial recovery yield from different suppliers.
Activin A (Qk001) from Qkine and alternative suppliers (A-E) was reconstituted in 10 mM HCl to a final expected protein concentration of 0.5 mg/ml. Protein concentration was determined in triplicate spectrophotometrically by measuring the spectrum from 320-220 nm and using scattering corrected absorption at 280 nm. A theoretical absorption coefficient of 18950 AU mol-1 cm-1 was used for the calculation of protein concentration.