



# Centrifugal Blue<sup>®</sup> Washer with Magnetic Blue<sup>®</sup> Carriers

## Centrifugal Bead Separation for Magnetic Bead Assays

With a suite of **magnetic Blue<sup>®</sup> Carriers**, **Blue<sup>®</sup> Washer** dramatically **reduces run time and tip waste** for magnetic bead assays such as AMPure<sup>®</sup> in applications such as **NGS library preparation** and **DNA extraction**.

**Magnetic Blue<sup>®</sup> Carriers** retain beads during centrifugal evacuation, eliminating costly and time consuming liquid removal by automated liquid handlers.

Discover how leading **clinical diagnostics labs**, **pharmaceutical companies** and **academics labs** are speeding up their mag bead separation steps, avoiding tip waste while dramatically reducing cost.

**Frank Feist, Wolfgang Mann, Kerstin Hagen-Mann**  
**Founders of BlueCatBio**

# Centrifugal Bead Separation (CBS)

## How does it work?

- Place MTP with magnetic bead assay on **magnetic Blue<sup>®</sup> Carrier** and **let settle**
- Blue<sup>®</sup> Washer **expels supernatant** from plate wells by centrifugation - a tip-less, non-contact alternative to aspiration - while the **carrier's magnets retain beads** in wells
- Blue<sup>®</sup> Washer design ensures **no well-to-well contamination**



## Benefits

- **No tips!**
- **High throughput:** remove supernatant from 96, 384, 1536w MTP < 20 sec
- **Minimal bead loss:** no aspiration needle to interfere with beads
- **Better data:** lower assay background and variability due to lower residual
- **Optimize ALH workload:** adding Blue<sup>®</sup>Washer to ALH > triples ALH throughput

## Applications

- **PCR clean-up:**
  - reduce 4x96w AMPure<sup>®</sup> XP ALH run time from 45min to <15min
  - No tips for separation steps
- **Luminex<sup>®</sup> magnetic bead assays:**
  - no bead loss
  - better %cv
  - more linear standard curves
  - eliminates manual tapping

# Magnetic Blue<sup>®</sup> Carriers for Centrifugal Bead Separation (CBS)

**96w PCR**



**384w PCR plates**



**96w Luminex and n3D**



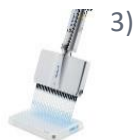
**384w Luminex and n3D**



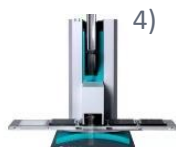
# Case study: AMPure® XP steps in NGS library prep 384w plate<sup>1)</sup>, semi-automated

## Workflow steps transferred to Blue® Washer<sup>2)</sup>

Dispense 40µl DI water into 384w MTP



Evacuate supernatant



1x bead wash with 30µl 80% EtOH



Each of these 3 steps is repeated 2x, first for **adaptor clean-up**, then for **post amplification AMPure® XP bead cleanup**



## Impact of Centrifugal Bead Separation (CBS)

- Save 384 tips @ 10c/tip
- Save time
- Reduce human error & fatigue

- Save 384 tips @ 10c/tip
- Save time
- Reduce errors

- Save 2\*384 tips @ 10c/tip
- Save time
- Reduce errors

x 2

- 1) Eppendorf™ twin.tec™ 384-Well PCR plate
- 2) Blue® Washer settings: dispense pressure level 3, angled dispenser aimed at center of well surface (jet hits at front well wall just above bottom) , evacuation with “MagBeadSpin”
- 3) P100 pipette by Eppendorf. Pipette 3 columns across. Need full set of 384 mosquito® tips to avoid cross contamination from source well
- 4) mosquito® HTS by ttpabtech, 16pin head, sequential tip loading from reel
- 5) Total cost/ 384w plate w/o Blue®Washer: \$955.80 (=\$307.20 mosquito® tips for dispense, evacuate, wash steps + \$89 AMPure® XP beads + 2\*384\*17c = \$130 Eppendorf tips, \$149.6 mosquito® tips for elution + 7h labor @ \$40h); AMPure® XP bead cost based on adding 7.5µl beads to 10.5µl sample per well (bead ratio 0.7 to optimize sample recovery and to exclude fragments <200bp)

- Saved 3,072 tips @ \$307.20
- Cut hands-on time from 7h to 2h50min @ \$40 = \$167

## Total Savings:

- **\$474/ 384w plate**
- **\$1.23/ sample**
- **50% cost reduction for adaptor and post PCR clean-up steps<sup>5)</sup>**

# Case study: AMPure® XP, fully -automated

ALH without Blue® Washer

ALH + Blue® Washer

**Turn-around-time**  
(4\*96w MTP  
AMPure® XP)

45min

10-15min

**Tips/ sample**  
(bead separation  
steps)

8

ZERO

**Tips/ day**  
(1,000 samples)

8,000

ZERO

CAPX



~ \$600k

~ \$265k