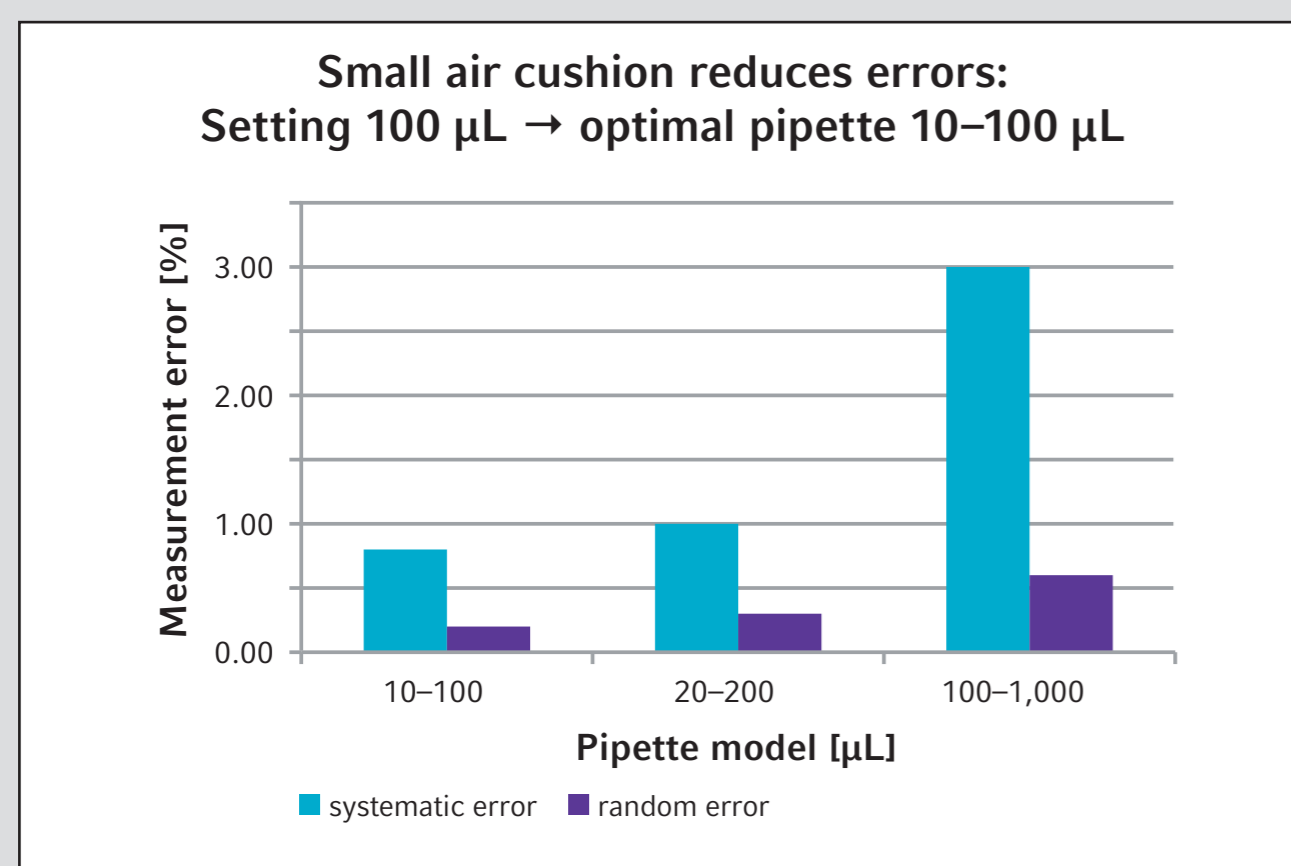


# Pipetting Techniques

## Best pipetting practice

### 1) Correct pipette/tip combination

Reduce errors by choosing a pipette/tip combination with the smallest possible air cushion.



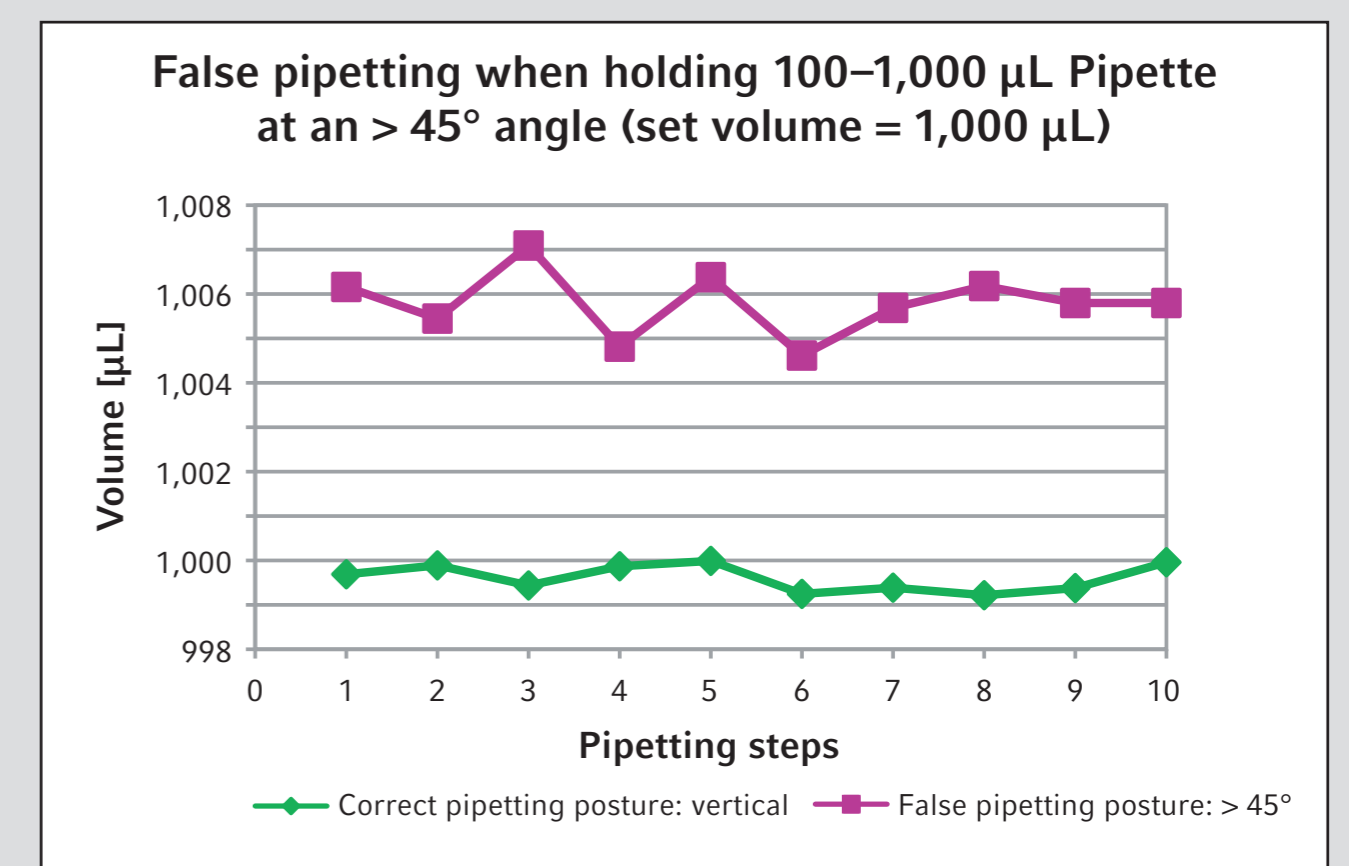
### 2) Correct immersion depth

- > Immerse as little as possible  
→ preventing liquid transfer on the tip's outside
- > Immerse deeply enough to avoid uptake of air

Volume in µL	Depth in mm
0.1–1	1
1–100	2–3
100–1,000	2–4
1,000–10,000	3–6

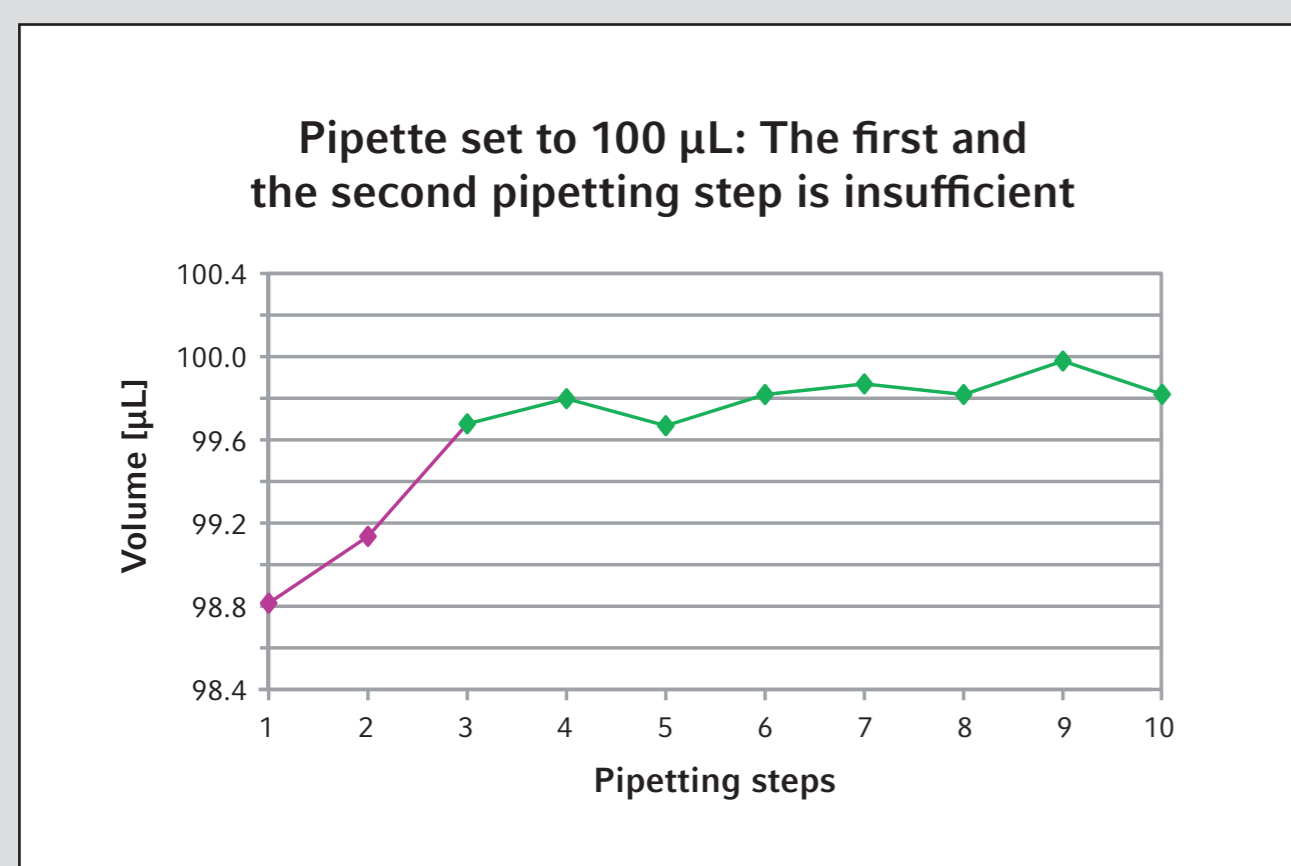
### 3) Vertical pipette posture for liquid uptake

The hydrostatic pressure changes with the holding angle of the pipette.



### 4) Prewetting = Saturating of air cushion

Prewet tip at least three times to equilibrate air cushion to liquid.



### 5) Correct liquid discharge

- > Discharge liquid by touching the wall of the target vessel → adhesion force of liquid
- > Volumes below 10 µL: discharge directly into the liquid



### 6) Slow and continuous working pace

To ensure precise and accurate pipetting results



## Forward and reverse pipetting

### Transfer

#### Forward pipetting

#### Liquid uptake

1. Press operating button down to 1st stop
2. Let operating button move up completely

#### Liquid discharge

3. Press operating button via 1st stop down to 2nd stop

#### Observation

4. No liquid is left in tip after action

### Reverse pipetting

1. Press operating button down to 2nd stop
2. Let operating button move up completely

3. Press operating button down to 1st stop

4. Liquid is left in tip after action (volume of blow-out)

