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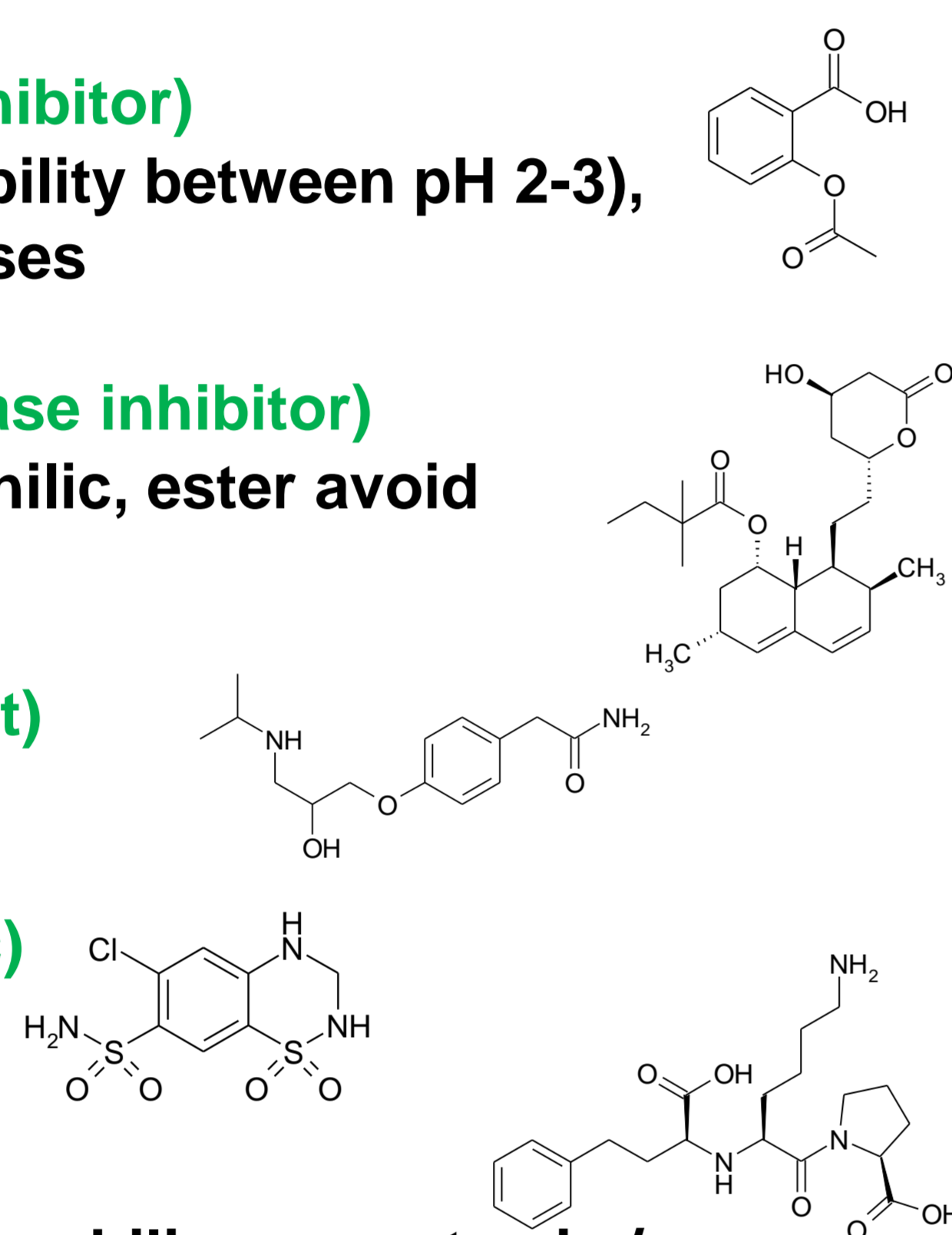
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## OBJECTIVES

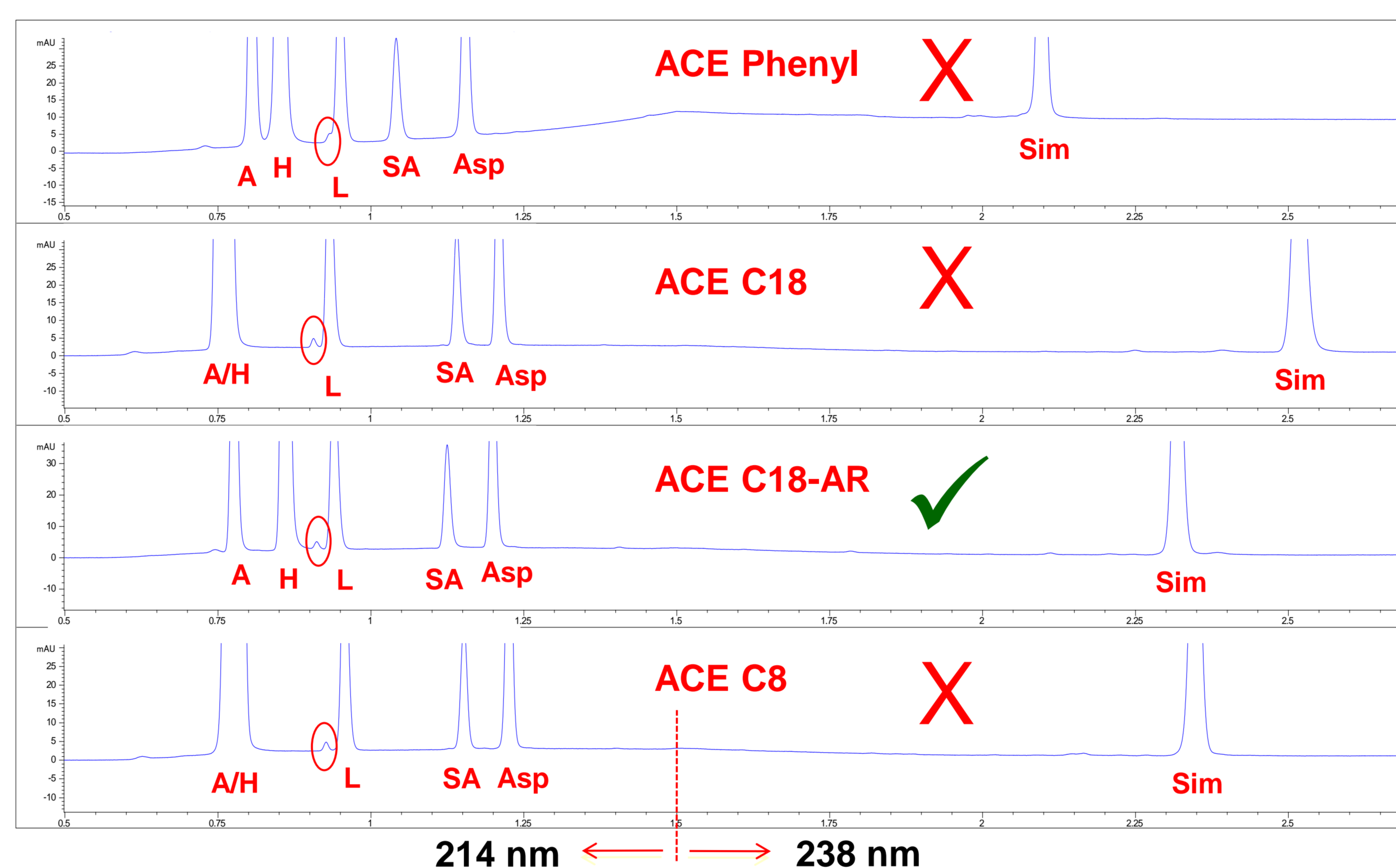
Develop a **rapid assay method** that is **simple** and **transferable** without exotic equipment and suitable for monitoring **five active ingredients** in formulations

### 1. CHALLENGES : CHROMATOGRAPHY, STABILITY, DETECTION

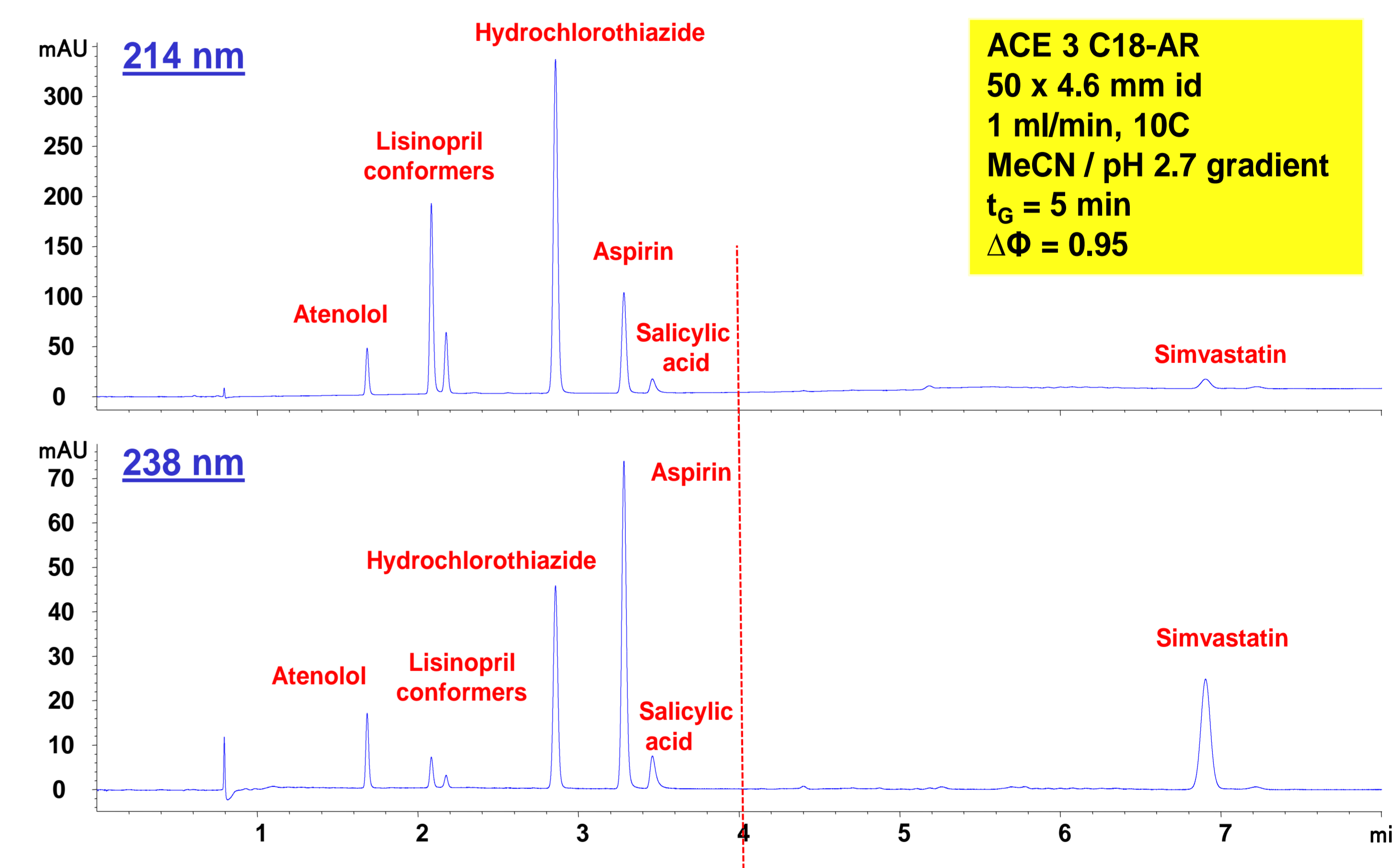
- ◆ **Aspirin** (platelet aggregation inhibitor)
  - Prone to hydrolysis (max. stability between pH 2-3), ester avoid MeOH mobile phases
- ◆ **Simvastatin** (HMG-CoA reductase inhibitor)
  - Prone to oxidation, very lipophilic, ester avoid MeOH mobile phases
- ◆ **Atenolol** ( $\beta$ 1 receptor antagonist)
  - Basic compound, peak tailing
- ◆ **Hydrochlorothiazide** (diuretic)
  - Acidic, hydrophilic
- ◆ **Lisinopril** (ACE inhibitor)
  - Acid / basic functionality, hydrophilic, prone to cis / trans isomerisation



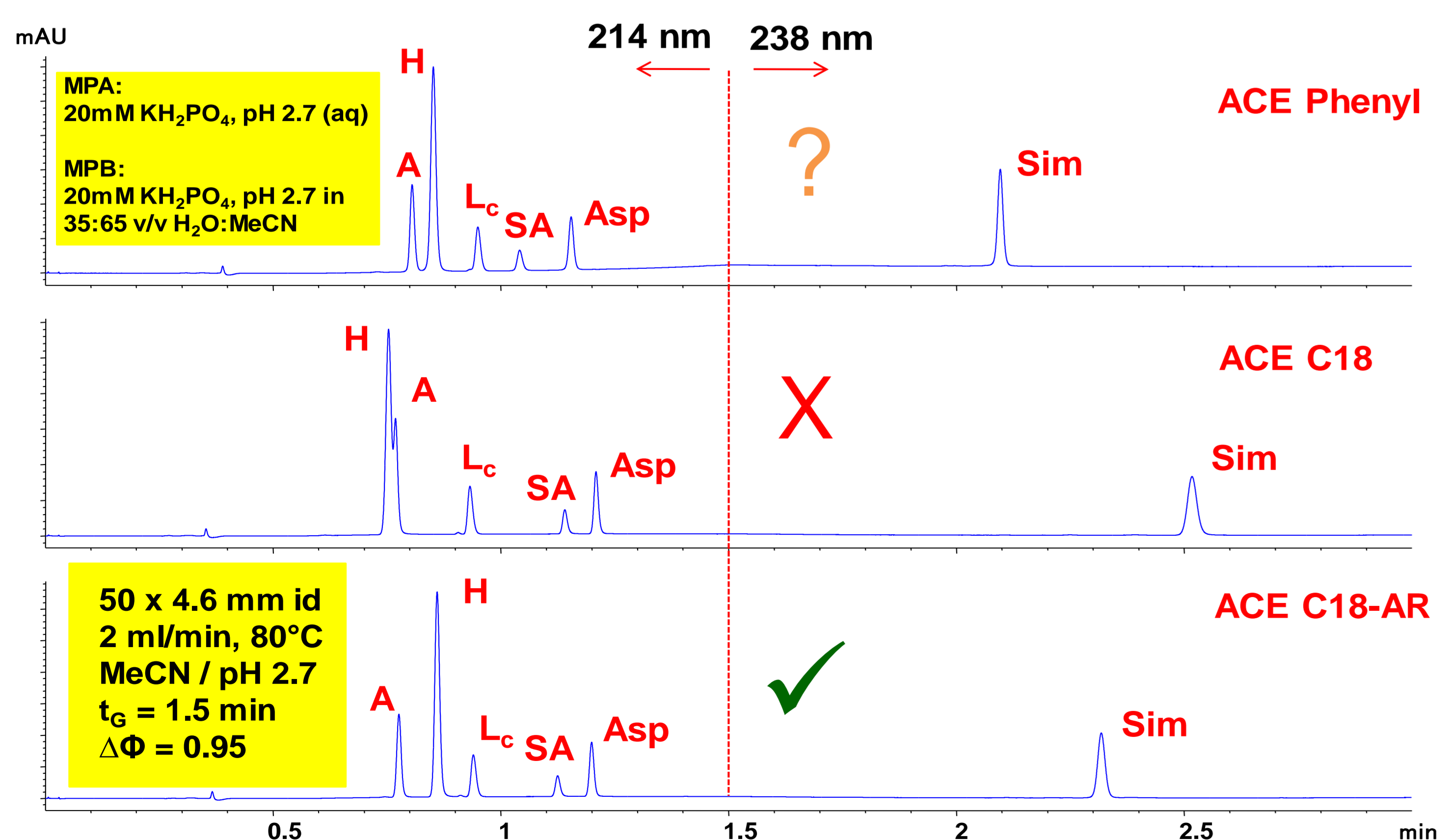
### 3. EXPANSION OF INITIAL RUNS TO SHOW IMPURITY ISSUE



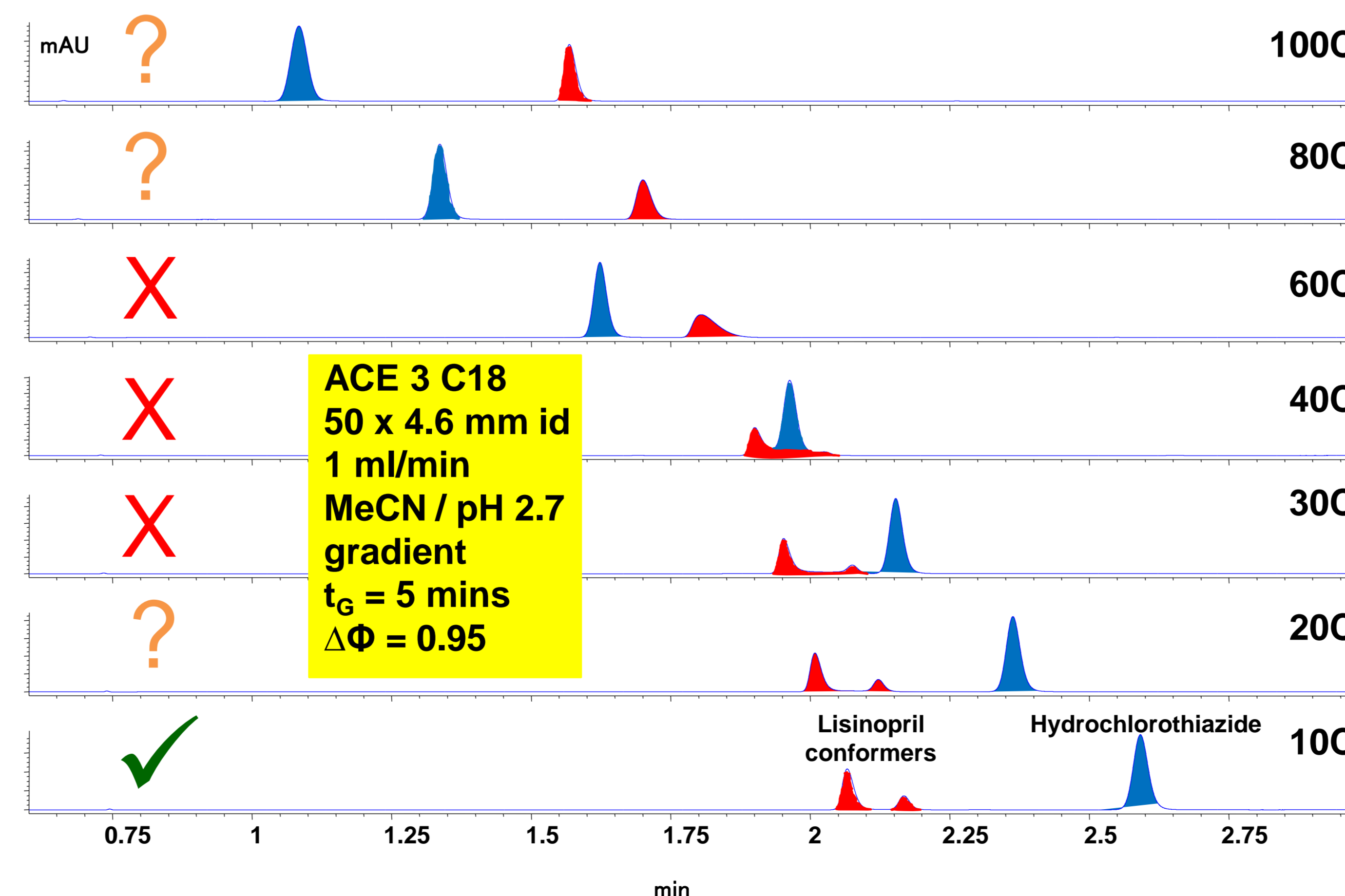
### 5. FINAL METHOD WITH WAVELENGTH SWITCH



### 2. INITIAL SEPARATION OF FIVE ACTIVES + ASPIRIN IMPURITY



### 4. ISOMERISM STUDY OF LISINOPRIL WITH TEMPERATURE



### 6. CONCLUSIONS

- ◆ **ACE<sup>®</sup> C18-AR** provided the best overall phase option
- ◆ **Short HPLC assay method** developed **successfully**
- ◆ Chromatographically **straight forward**, but **challenging** physico-chemical properties
- ◆ **Wavelength switch** option **not ideal** but necessary
- ◆ **Sub 3 minute** method possible should **resolution** of Lisinopril conformers **not** be required
- ◆ **Scalable to UHPLC** with **ACE<sup>®</sup> Excel<sup>™</sup> 2 μm** columns