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Fully automated and rapid at-line method for measuring boar taint related compounds in back fat.

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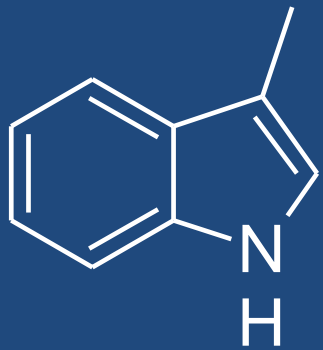


Background

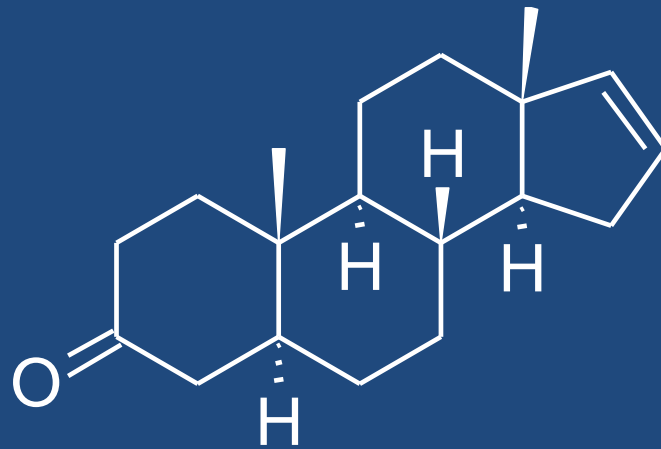
Stop for castration?

Boar taint compounds

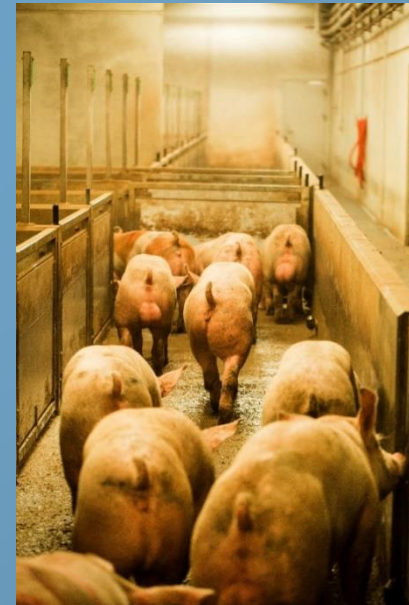
- Skatole
- Androstenone



Skatole



Androstenone





Requirements to new analytical method

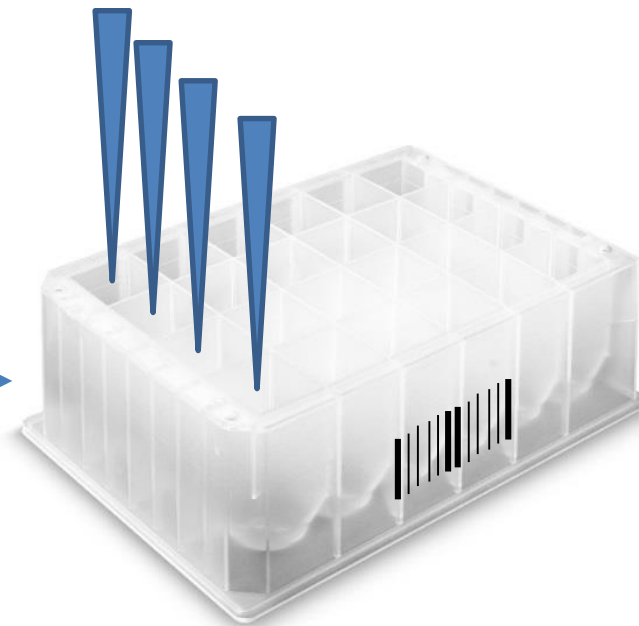
- Simultaneous detect and quantify both skatole and androstenone
- 45 minutes from sample is taken to result is available
- More than 280 samples per hour
- Price approx. 1 €
- Fully automated analytical system with a minimum of maintenance

Brief resume of the analytical method

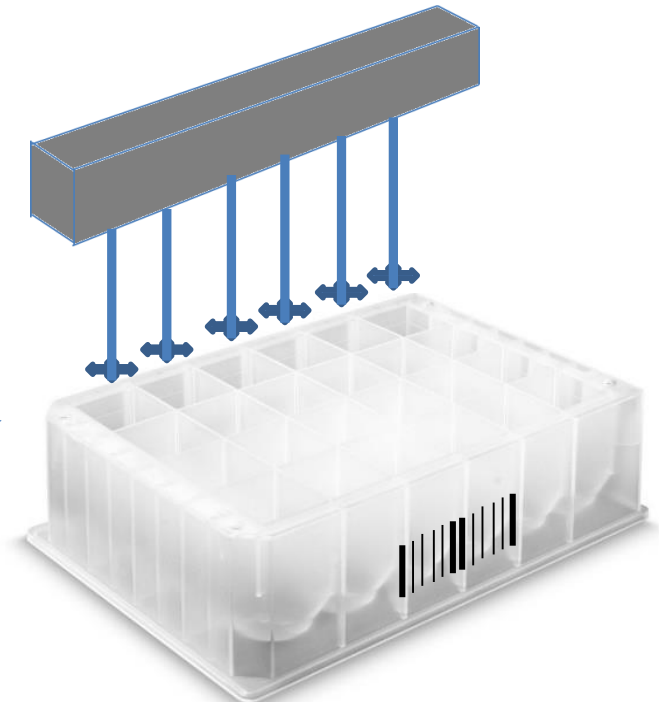
- 24 back fat samples (0,3 - 0,5 g)



2.50 mL acetonitrile +
internal standards

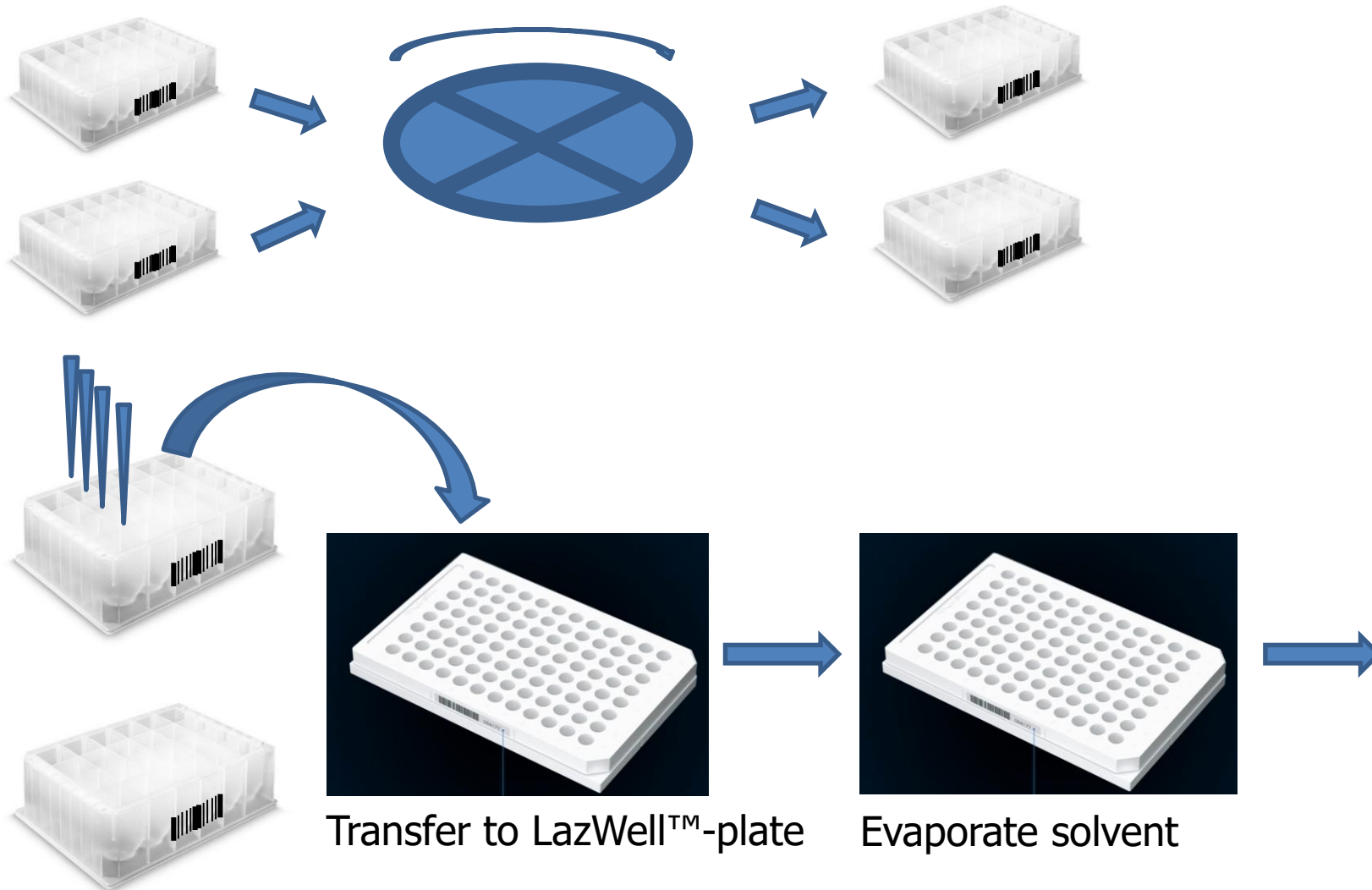


2.50 mL brine, 0,08 M NaOH



Homogenize samples
Extraction of skatole and
androstenone

Centrifugation – phase separation



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LDTD-MS/MS analysis

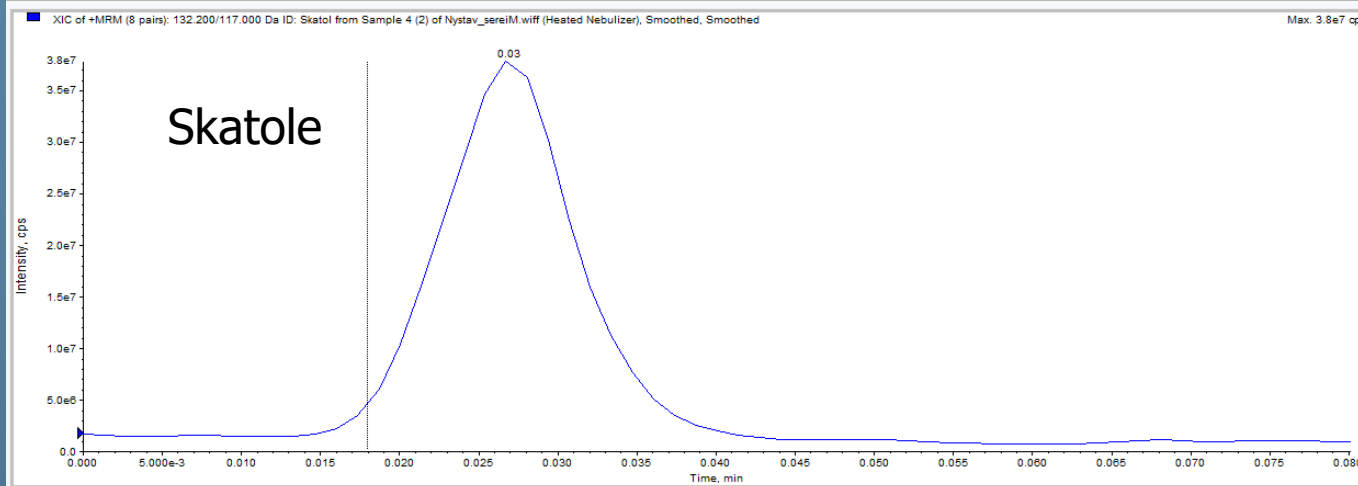
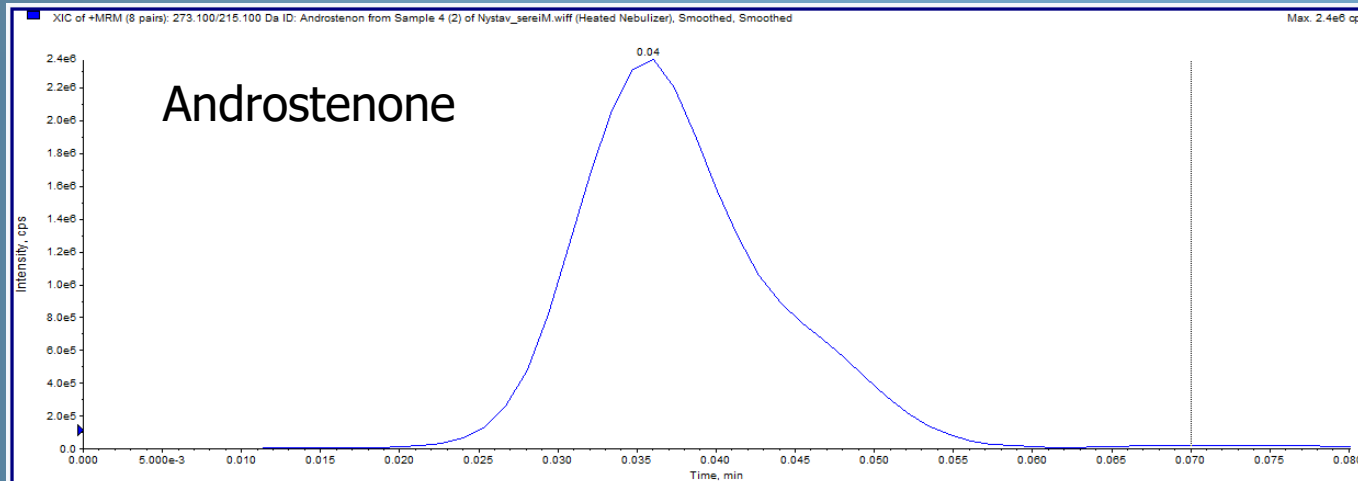


Validation of the Analytical Method

- Specificity
- Limit of detection (LOD)
- Limit of quantification (LOQ)
- Trueness

Specificity

- LDTD-MS/MS
- 2 transitions for each compound





Limit of detection (LOD) and limit of quantification (LOQ)

	LOD	LOQ
Skatole	0.02 µg/g	0.05 µg/g
Androstenone	0.05 µg/g	0.1 µg/g

Sorting limits

Skatole equivalents 0.25 µg/g

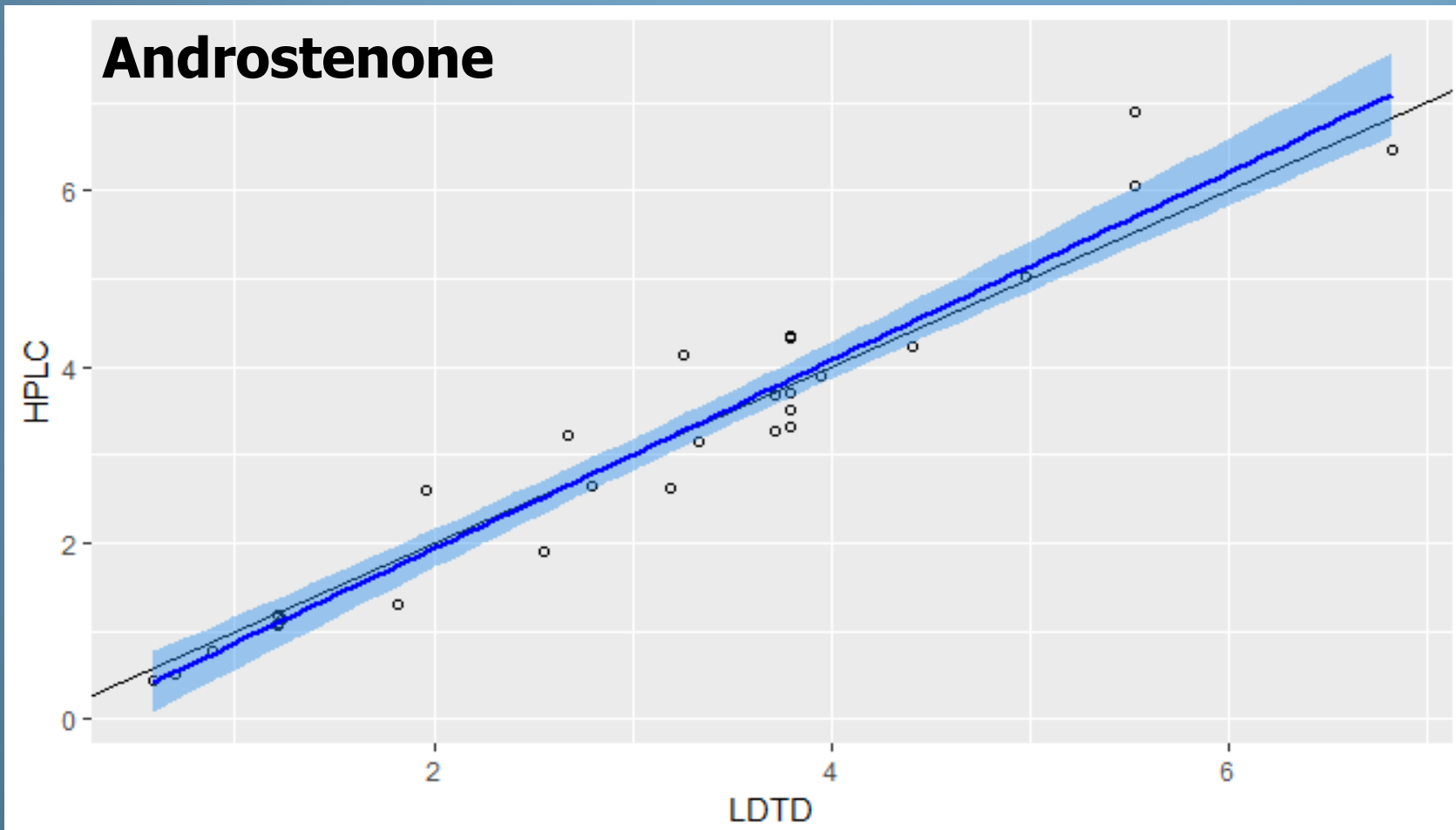
Androstenone to be determined

Trueness

Comparison: HPLC-UV analytical method vs LDTD-MS/MS



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Conclusion

- LDTD-MS/MS analysis at 10 seconds
- 2880 samples per 8 hour workday (360 per hour)
- Less than 40 minutes from sample to analytical result
- Price 1€ per sample
- Robust analytical system



Further perspectives

- Automation of developed method at a Danish slaughterhouse
- Determination of sorting level for androstenone
- Apply analytical method at DMRI for research projects
 - Immunocastration
 - Breeding programs

Questions?



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