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**MASTER AS – Automatic liquid Sampler**

## ... maximized productivity

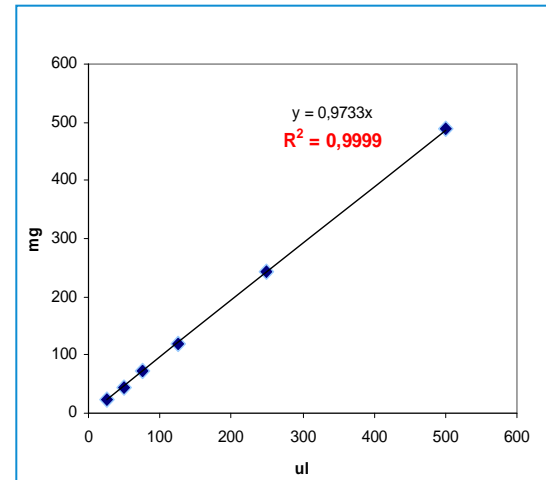
**MASTER AS** maximizes the laboratory productivity:

- **large sample capacity** (up to 160 vials)
- **extended capabilities** in injection techniques (sandwich injection, hot needle, internal standard, wide range of syringe volume..)
- **high flexibility** in the control of sample sequence (stored sample sequence, 25 lines, 100 repetitions, priority sequence, sensor for vial presence,..)

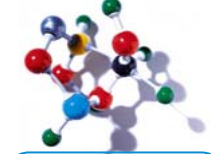
## ... with the highest accuracy and precision

**MASTER AS** assures a high degree of precision:

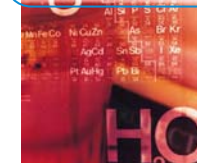
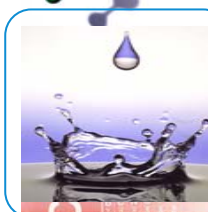
- RSD% area **repeatability** better than 0.3%
- outstanding sample volume **linearity**



	C8	C10	C12	C14
1	188,749	157,419	102,825	101,723
2	188,317	156,319	102,568	101,577
3	187,259	155,916	101,847	101,07
4	187,479	156,438	101,89	101,644
5	188,231	156,458	102,241	102,004
6	188,108	156,314	102,214	101,828
7	188,109	156,861	102,165	101,956
8	188,024	156,89	101,859	101,196
9	188,73	156,865	102,498	101,875
10	188,891	156,833	102,431	101,771
11	188,518	157,469	102,749	101,401
<b>Media (mV.s)</b>	<b>188,220</b>	<b>156,707</b>	<b>102,299</b>	<b>101,640</b>
<b>SD</b>	<b>0,512</b>	<b>0,474</b>	<b>0,347</b>	<b>0,305</b>
<b>RSD%</b>	<b>0,272</b>	<b>0,303</b>	<b>0,339</b>	<b>0,300</b>



<b>System Type</b>	X-Y-Z Robot
<b>Sample Capacity (2ml vials)</b>	160
<b>Sample Capacity (10/20 ml vials)</b>	65
<b>Solvent / Waste Vials</b>	5 / 5
<b>Minimum Sample Injection</b>	0.1 $\mu$ l
<b>Maximum Sample Injection</b>	500 $\mu$ l
<b>Syringe sizes</b>	5, 10, 25, 50, 100, 250, 500 $\mu$ l
<b>Injection per Vial</b>	up to 100
<b>Injection port</b>	up to 3
<b>Vial presence sensor</b>	YES
<b>Parameter control</b>	Pre/Post injection solvent washing, Sample/IS rinse (number/volume), Sample vial depth Syringe strokes before injection, Plunger sampling speed, Plunger injection speed, Pre/Post injection delay, Viscosity delay, Solvent plug volume, Internal standard volume, Sample volume, Air plug volume, Priority vial/sequence



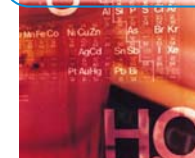
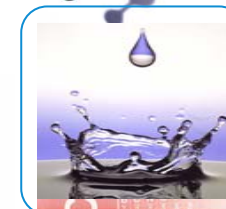
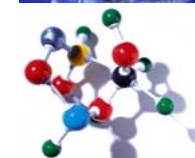
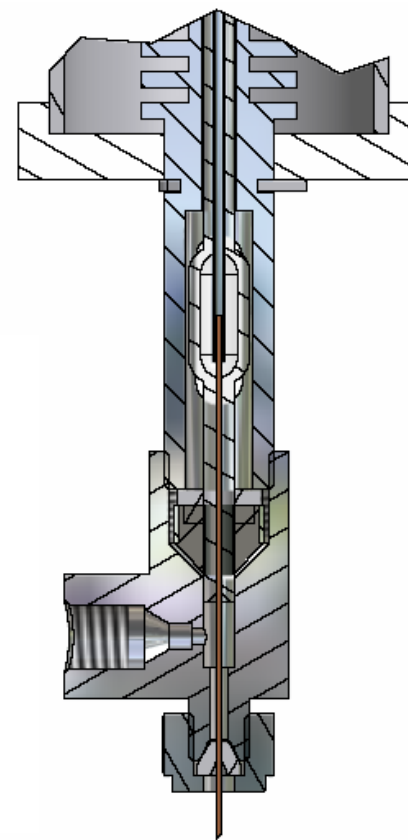
## ... *on-column injection in FAST GC*

Automated **FAST ON-COLUMN** injector allows the injection of nano to macro volume of liquid sample directly into narrow and ultra narrow (50-250 microns) capillary columns.

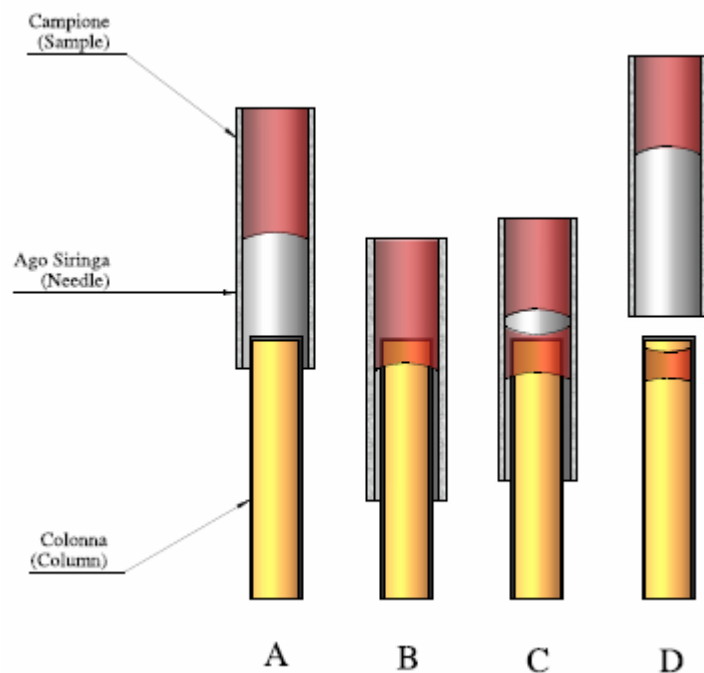
- True cold on-column injection in FastGC
- No sample dilution
- No use of pre-column
- Fully automatic

## ... *takes advantage of*

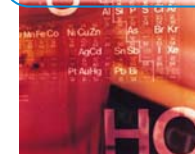
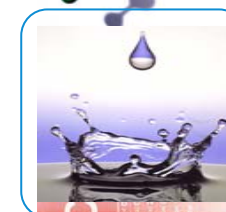
- No discrimination effect on wide range boiling points
- No sample degradation of thermally-labile compounds
- No impurities from septa
- Wide range of injection volume (from nanoliters to microliters)



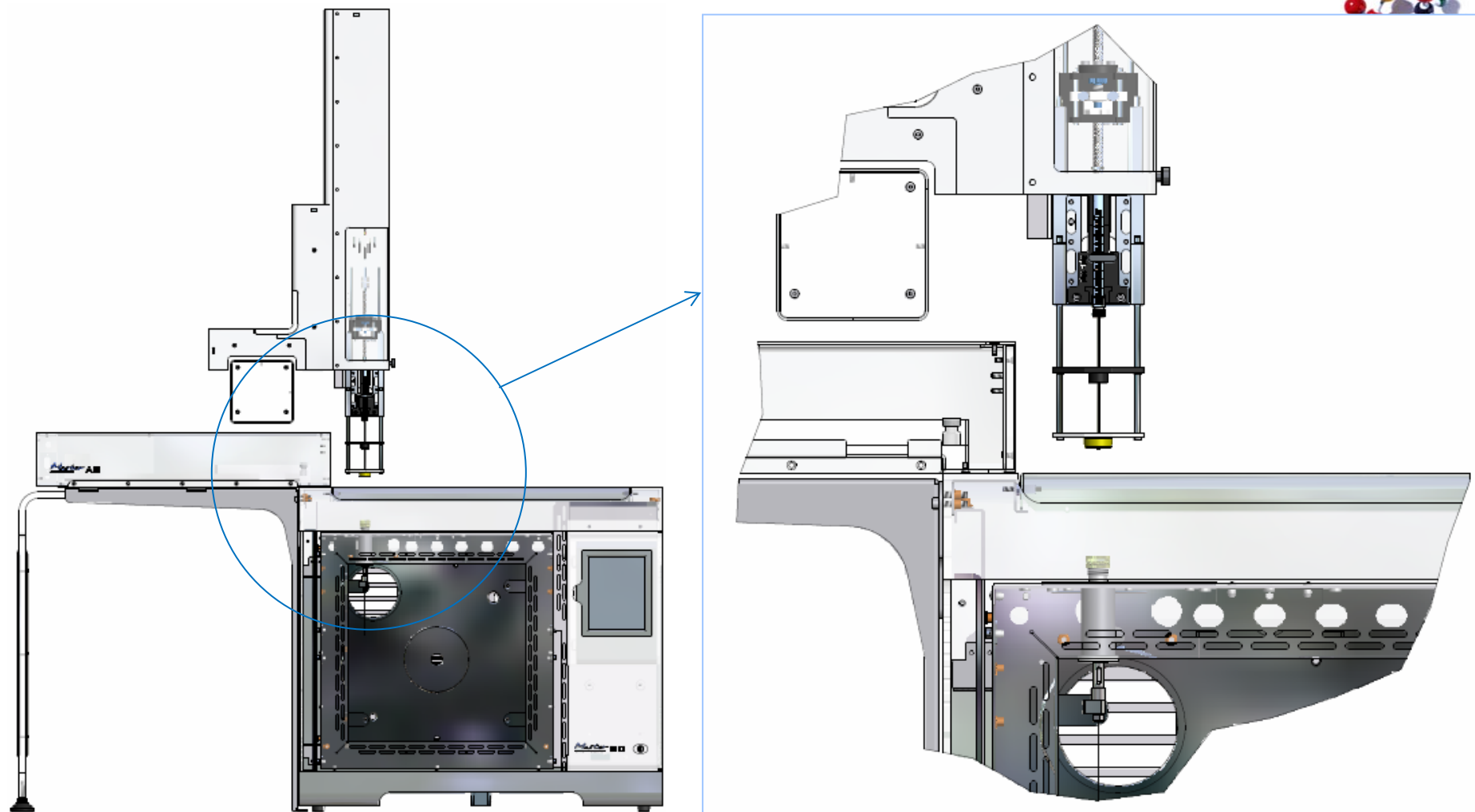
## *Principle of operation*



- A)** The syringe needle slides over the capillary column
- B)** The column comes in contact with the liquid
- C)** The liquid is sampled by capillarity
- D)** The needle withdraws and the analysis starts

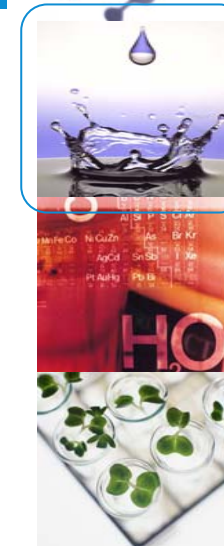


# *Automated Fast On-column*



Automated FAST ON-COLUMN

# SAGE Essential Oil FAST-GC



Hot Injection

FAST ON-COLUMN\*

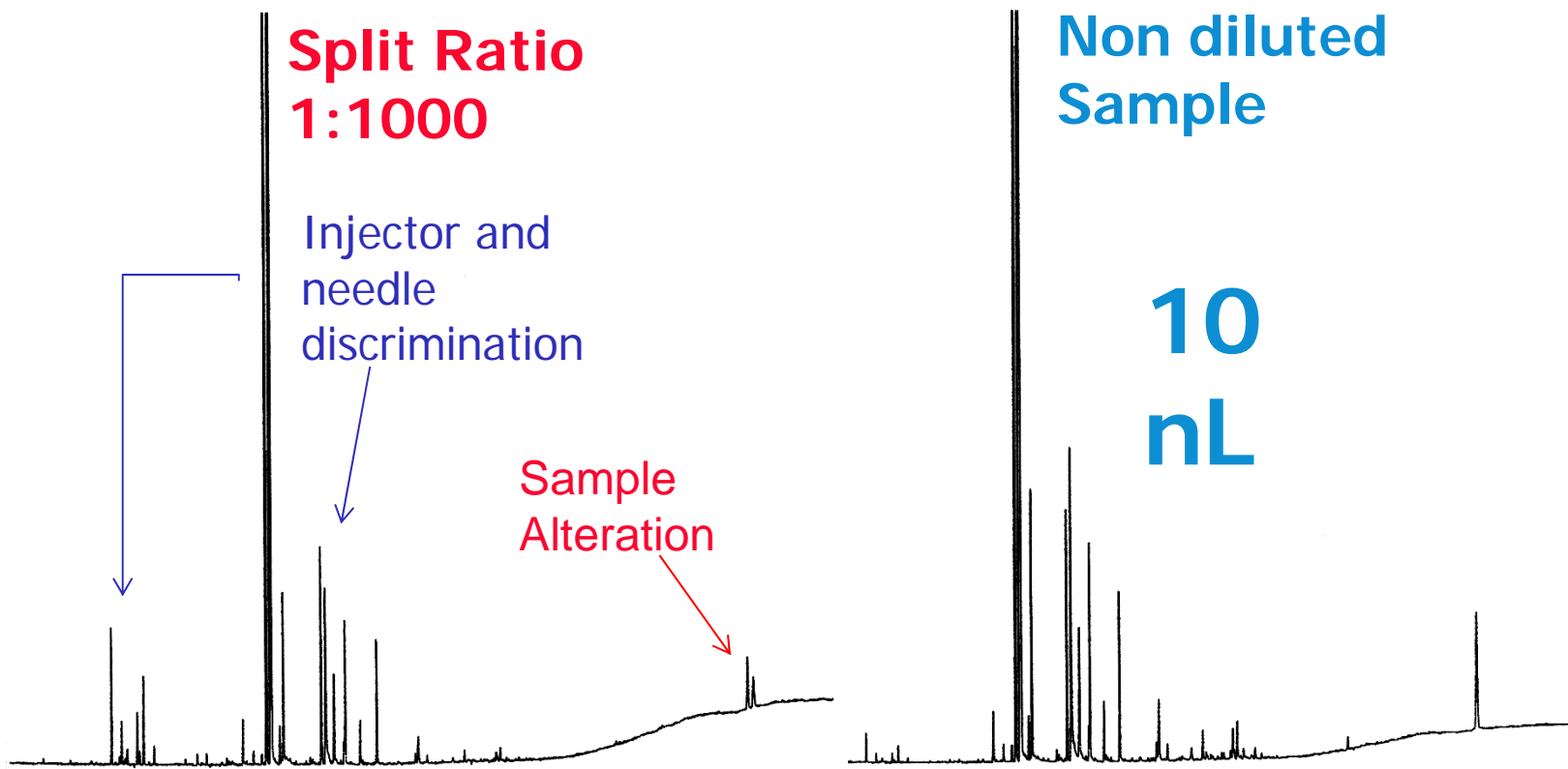
**Split Ratio  
1:1000**

Injector and  
needle  
discrimination

Sample  
Alteration

Non diluted  
Sample

**10  
nL**



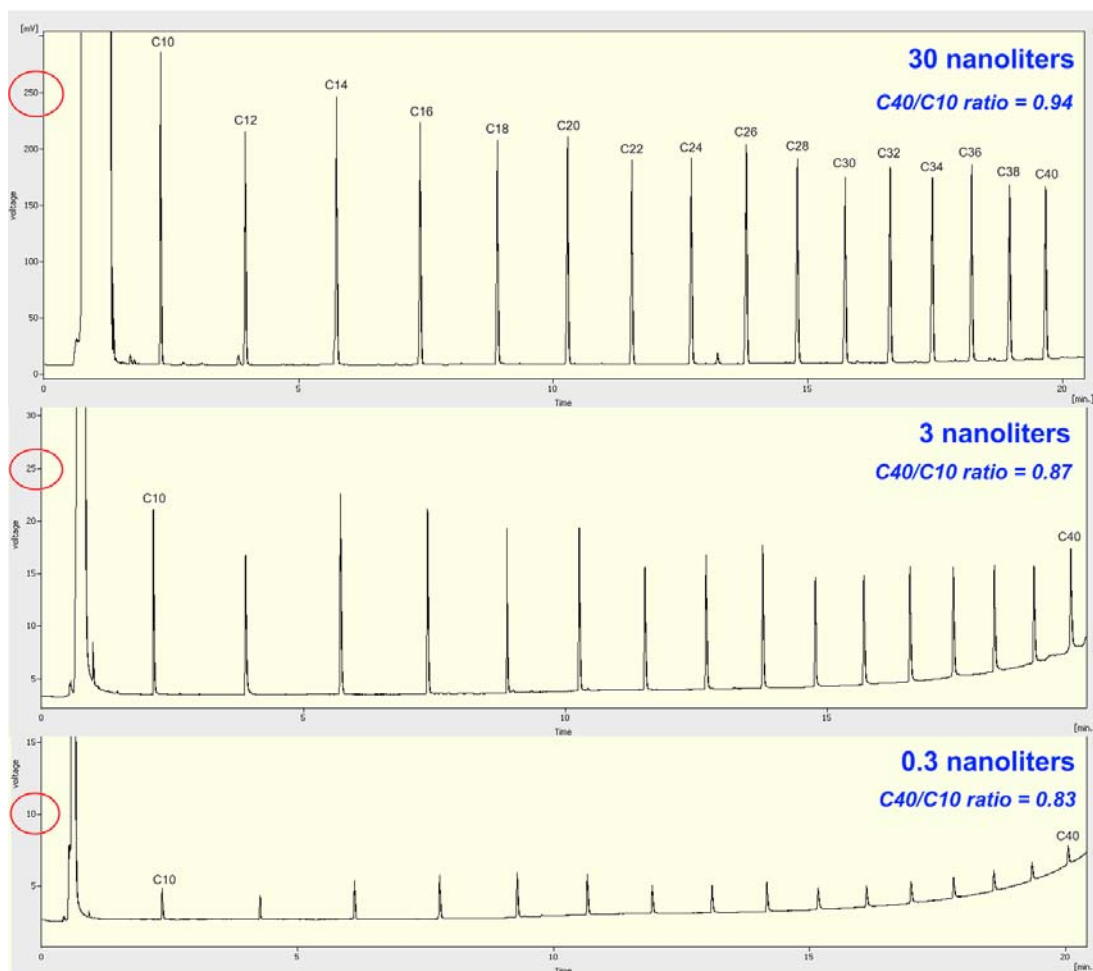
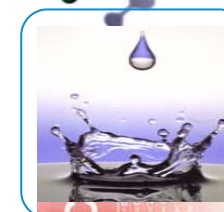
Column: 10 m L x 100  $\mu$ m i.d., 0.1  $\mu$ m f.t. DN-WAX  
Oven: 40°C – 15°C/min – 230°C  
Carrier gas: Hydrogen at 59 cm/s

**10 min  
analysis time**

\* Patent Pending System

Automated FAST ON-COLUMN

## Automated Fast On-column Performances



This application shows the performances of the FAST On-Column Inlet system (\*) with an introduction of Alkane Mixture from 30nL down to 0.3nL direct liquid injection into the column! The discrimination is minimized like a traditional On-Column injection.

FLUKA Cat.# 68281, "Alkane Standard Mixture for the assay of the system efficiency of GC's C10-C40"

### Column:

5 m L x 250  $\mu$ m i.d., 0.1  $\mu$ m f.t. DN-1

### Oven:

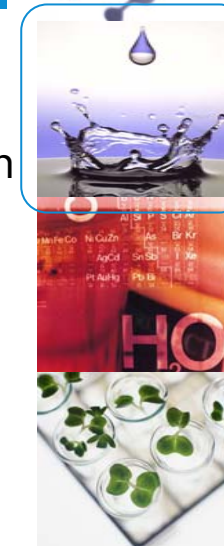
40°C – 15°C/min – 350°C

### Carrier gas:

Helium at 30 kPa

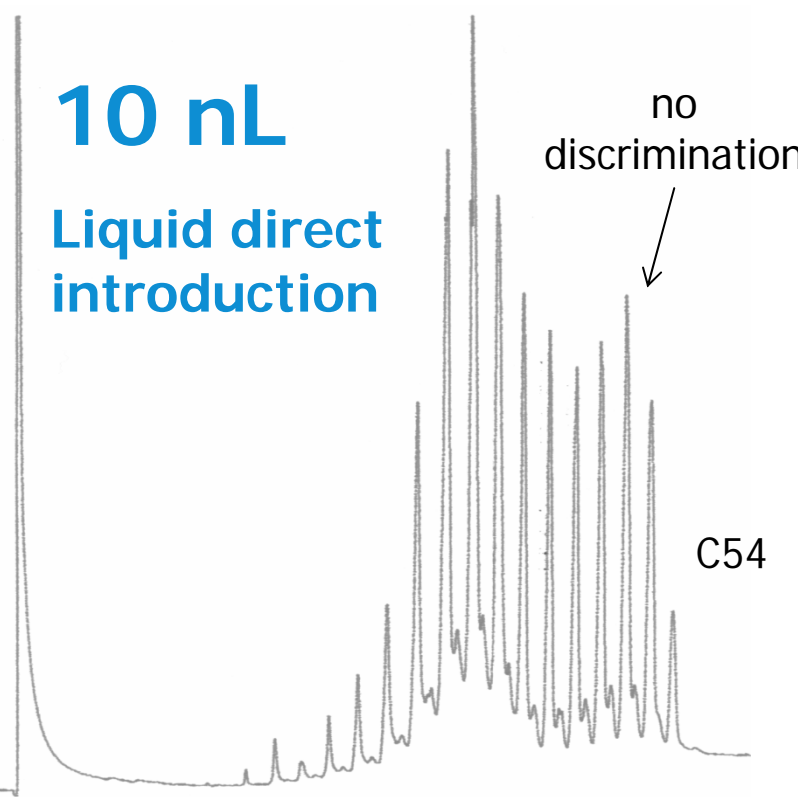
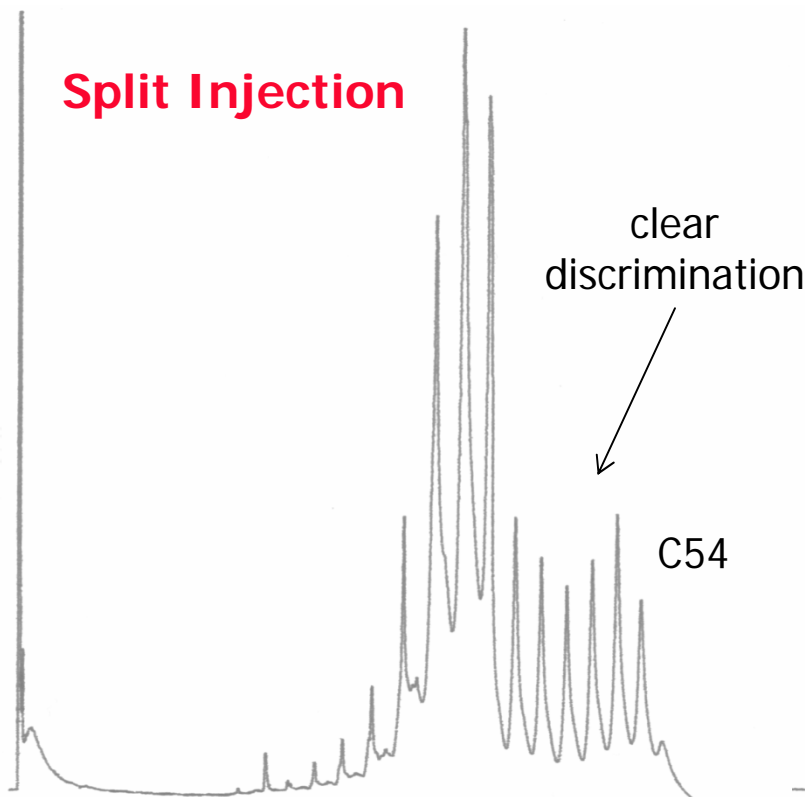


# Butter TRIGLYCERIDES FAST-GC



Hot Injection

FAST ON-COLUMN\*



**Column:** 1.5 m L x 100 µm i.d., 0.1 µm f.t. DN-1  
**Oven:** 100°C – 30°C/min – 350°C  
**Carrier gas:** Hydrogen at 150 kPa

**8 min  
analysis time**

\* Patent Pending System

Automated FAST ON-COLUMN

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