# DYNAMIC INTERFERENCE TESTING RESULTS WITH THE LIBRE 3 CONTINUOUS GLUCOSE MONITORING DEVICE IN COMPARISON TO LIBRE 2

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## Background

Little is known regarding the potential interference of drugs or nutritional substances on commercially available CGM sensors. We have developed an in-vitro test method to continuously and dynamically investigate potential interferents. Previously, we have identified 11 substances (from a panel of 68) that influenced the Libre2 sensor in a previous experiment. Here, we report on the test results with the complete panel when testing the Libre3 and Libre 2sensors in parallel.

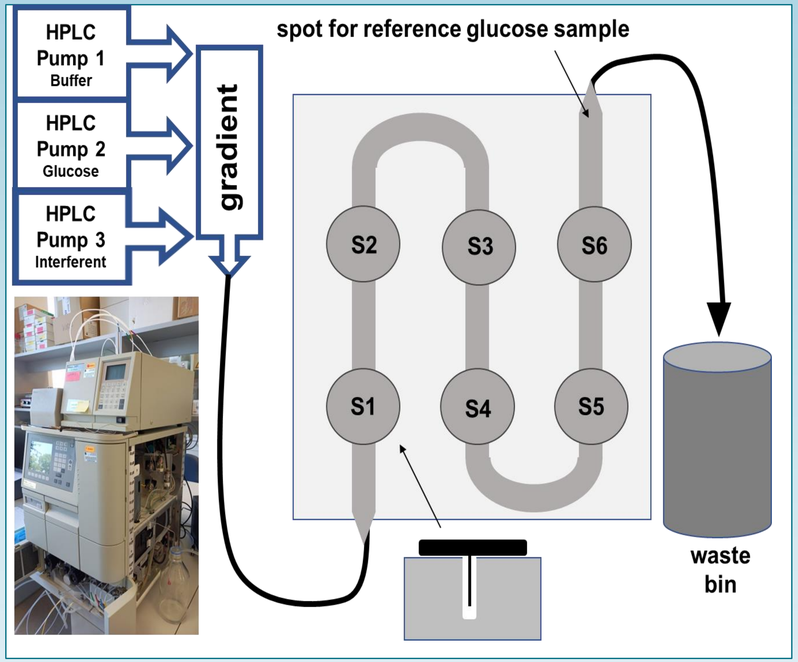
## Methods

We have developd a laboratory test method and protocol for dynamic interference testing (Pfützner et al, 2024). Three sensors from each type were exposed to substance gradients from zero to supraphysiological concentrations generated by HPLC-pumps at a stable glucose concentration of 200 mg/dL (reference method: YSI Stat2300Plus). Interference was assumed if the CGM needle sensors showed a mean bias >10% from baseline with a tested substance at any given substance concentration.

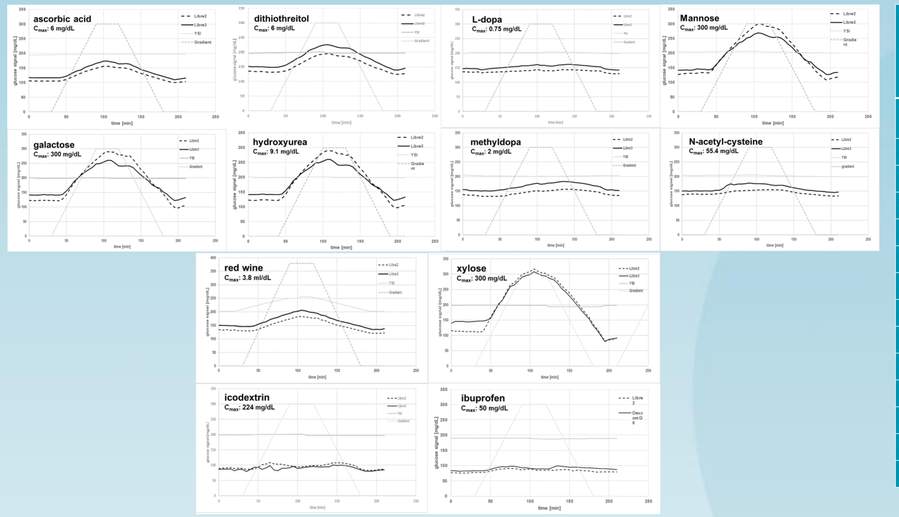
## Results

Interference (bias at the highest concentration tested from baseline, L2/L3) was seen with the following substances: xylose: 178%/94%, galactose: 134%/83%, mannose: 130%/88%, hydroxyurea 84%/137%, ascorbic acid 48%/49%, dithiothreitol 46%/51%, methyldopa 16%/20%, ibuprofen 14%/11%, red wine 12%/14% (corrected for YSI glucose changes), N-acetyl-cysteine: 11%/20%, and icodextrin: 10%/9%. No interference was seen with the other substances. In contrast to L2, Libre 3 sensors were also influenced by L-dopa (7 % vs 14%).

## Fig.1: Dynamic interference test for CGM sensors




## Fig.2 Libre 2 & 3 interference by 12/10 substances




## Table 1. Interfering substances

| Substance | Maximum Concentration tested | Bias over Baseline | | Type of substance |
|---|---|---|---|---|
| | | L2 | L3 | |
| Ascorbic Acid | 6 mg/dL | +48% | +49% | nutrient |
| Dithiothreitol | 6 mg/dL | +46% | +51% | drug |
| Galactose | 300 mg/dL | +134% | +83% | nutrient |
| Hydroxyurea | 9.12 mg/dL | +84% | +137% | drug |
| Ibuprofen | 50 mg/dL | +14% | - | drug |
| Icodextrine | 224 mg/dL | +10% | - | nutrient, drug |
| L-Dopa | 0,75 mg/dL | +7% | +14% | drug |
| Mannose | 300 mg/dL | +130% | +88% | sugar alcohol |
| Methyldopa | 2 mg/dL | +16% | +20% | drug |
| N-Acetyl-cysteine | 55.4 mg/dL | +11% | +20% | Drug |
| Red wine | 3.8 mL/dL | +12%* | +13% | nutrient |
| Xylose | 300 mg/dL | +178% | +102% | nutrient |

*red wine contained 10mg/dL glucose; BOB is adjusted for the reference reading

## Conclusions

The Libre 3 sensor showed the same interference pattern as previously found with Libre 2 indicating similar performance. As highlighted by the unexpected in vitro interference effect observed with hydroxyurea on the L2 and L3 systems, the clinical relevance of our findings for routine care should now best be investigated in people with diabetes.

**Reference:**
Pfützner A, Jensch H, Cardinal C, Srikanthamoorthy G, Riehn E, Thomé N. Laboratory Protocol and Pilot Results for Dynamic Interference Testing of Continuous Glucose Monitoring Sensors. J Diabetes Sci Technol. 2022:19322968221095573. (epub ahead of print)
doi: 10.1177/19322968221095573. PMID: 35549522.

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