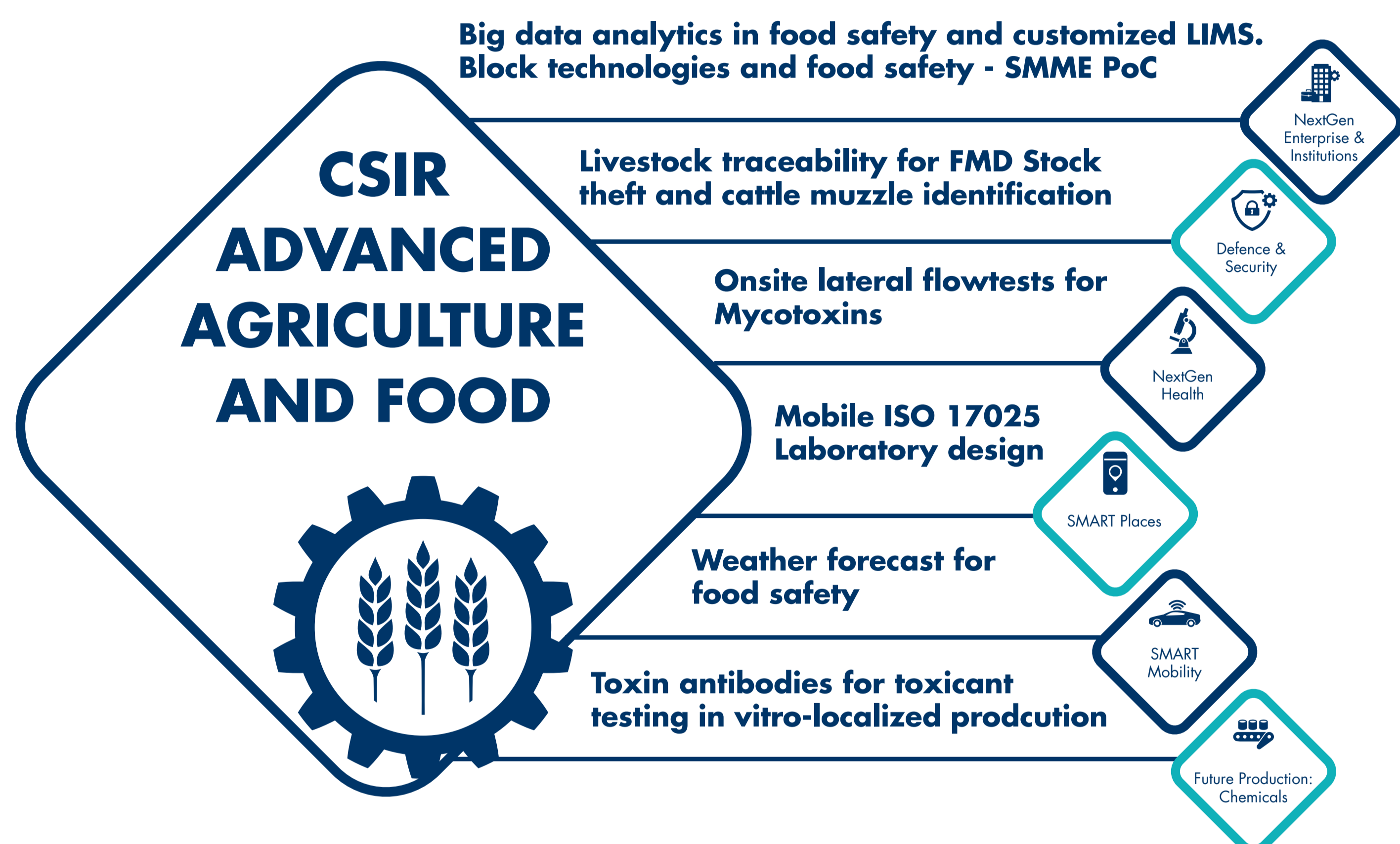


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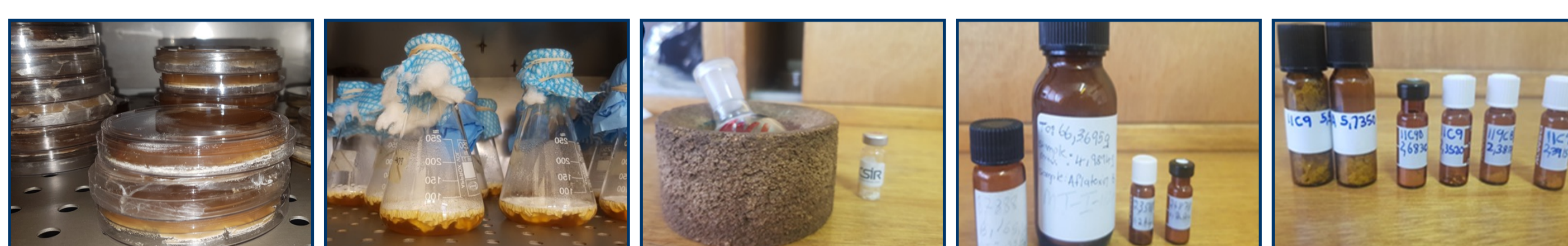
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INTRODUCTION

The Food Safety Programme at the Council for Scientific and Industrial Research (CSIR) leverages internal capabilities across the clusters. Food safety is a multi-disciplinary field, and the focus at CSIR includes food safety testing and regulatory compliance, production of pure mycotoxins to be used as standards and developing locally produced, convenient on-site testing technologies for detecting mycotoxins and pathogenic bacteria.



A. PRODUCTION OF MYCOTOXINS



- A1.** Identifying and selection of fungal strains from the CSIR collection.
- A2.** Testing selected fungal strains for mycotoxin production and optimization of growth conditions for mycotoxin production.
- A3.** Mycotoxin extraction and preliminary characterization.
- A4.** Mycotoxin purification and purity check using LC-FLR/UV detection.
- A5.** Verification of mycotoxins using NMR

CONCLUSION

The local production of mycotoxin standards and development of on-site testing kits for mycotoxins will create a viable production value chain for ensuring convenience in food safety testing.

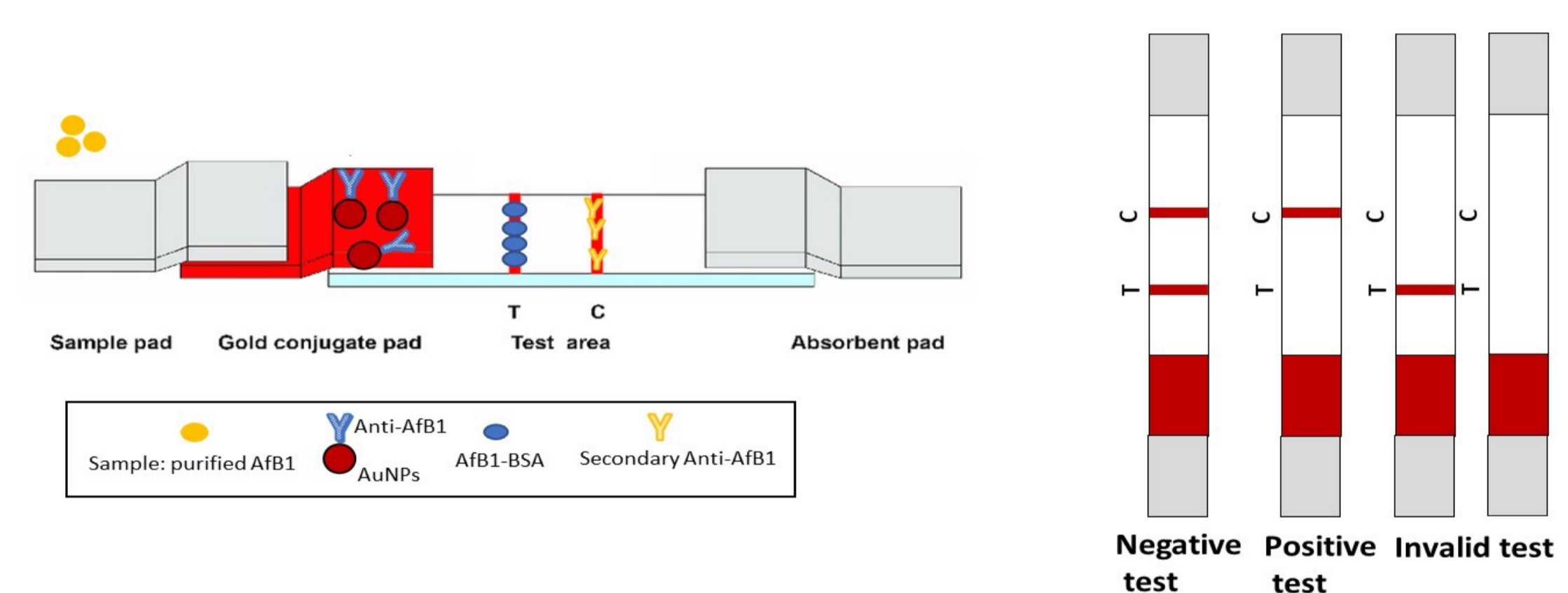
B. DEVELOPMENT ON ONSITE MYCOTOXIN TESTING KIT

B1. On-site Mycotoxin lateral flow test kit development Workflow



B2. Design of CSIR on-site aflatoxin B1 (AFB1) lateral flow test kit

The proposed onsite test kit for the detection of AFB1 is based on the competitive assay format, which is suitable for the low molecular weight AFB1.



Schematic representation of the onsite lateral flow test kit

B3. Synthesis of Gold nanoparticles

Gold nanoparticles were used at the detection reagent of choice as were produced using a chemical method of reduction of HAuCl₄ with sodium citrate was performed to produce 14nm gold nanoparticles. The next step is to perform bioconjugation and fabrication of the test strip.

