Insulin icodec explained

What is insulin icodec?
Insulin icodec is a once-weekly basal insulin analogue designed to cover the basal insulin requirements for 7 days with a single subcutaneous injection. It is currently under investigation for the treatment of type 1 and 2 diabetes in the phase 3 ONWARDS programme. The ONWARDS clinical development programme comprises six phase 3b global clinical trials, including a trial with real-world elements, involving more than 4,000 adults with type 1 or type 2 diabetes.

The potential of once-weekly insulin icodec
Once-weekly insulin icodec has the potential to redefine insulin therapy and reinvent the insulin start experience:

• Simple dosing and titration could help healthcare providers to initiate insulin icodec with confidence
• Fewer injections could reduce treatment burden
• Potential to improve adherence, leading to more time in range and better glycaemic control

What is the current unmet need?
Insulin remains the cornerstone of diabetes treatment. However, initiation of insulin therapy in type 2 diabetes is often delayed despite uncontrolled blood sugar levels, leading to increased risk of diabetes-related complications.

Injection burden is a major barrier to insulin initiation:
- 59% of physicians identified the number of daily injections as a difficulty for patients.
- 50% of people with type 2 diabetes needing insulin therapy delay initiation by an average of 15 months.
- 1/3 of all people with diabetes are not adherent to daily insulin therapy.
- 1/3 of people with diabetes need to change their insulin therapy each year.

Once-weekly dosing is associated with improved patient adherence compared with once-daily dosing.

How does insulin icodec work?
The insulin icodec molecule has been engineered by modifying human insulin, to give a prolonged half-life of approximately 7 days.

Three amino acid substitutions have been introduced to provide molecular stability, minimise the enzymatic breakdown of insulin icodec, and reduce receptor-mediated clearance.

Insulin icodec achieves similar glucose-lowering effect at steady state as once-daily insulin but with considerably fewer injections compared with once-daily insulin.

What is the formulation and dosing of insulin icodec?
Insulin icodec is formulated as 700 units/mL. It is designed to be injected subcutaneously once a week with an easy-to-use pen and optional digital support for personalised automated dose guidance.

Insulin icodec could significantly reduce the number of injections per year.

Diagram showing modelling of the increase in glucose-lowering effect over time (based on phase 1 data).

References
1. Nishimura E, et al. 
2. Rosenstock J, et al. 