

## **Full list of Inclusion and exclusion criteria**

### **Inclusion Criteria**

- (1) Written informed consent provided
- (2) Age  $\geq 40$  years
- (3) Diagnosed Prediabetes, meeting one of the following conditions:
  - A. Impaired fasting glucose (IFG):  $5.6 \text{ mmol/L} \leq \text{FPG} < 5.7 \text{ mmol/L}$
  - B. HbA1c 5.7-6.4% (39-47 mmol/mol)
- (4) Dyslipidemia, meeting one of the following conditions:
  - A. Fasting LDL-C  $\geq 3.4 \text{ mmol/L}$  and  $< 4.9 \text{ mmol/L}$ , and  $\text{TG} \leq 5.6 \text{ mmol/L}$
  - B. Fasting non-HDL-C  $\geq 4.1 \text{ mmol/L}$  and  $< 5.7 \text{ mmol/L}$ , and  $\text{TG} \leq 5.6 \text{ mmol/L}$

### **Exclusion criteria**

- (1) Patient with proven or documented atherosclerotic cardiovascular disease (ASCVD), including acute coronary syndrome (ACS), history of myocardial infarction (MI), stable or unstable angina pectoris, coronary or other revascularization, ischemic stroke, transient ischemic attack, and peripheral vascular disease (PAD), etc.
- (2) Diagnosed diabetes, according to the 2021 American Diabetes Association (ADA) "Standards of Medical Care in Diabetes", meeting one of the following conditions:
  - A.  $\text{FPG} \geq 126 \text{ mg/dL}$  ( $7.0 \text{ mmol/L}$ ).
  - B. Known 2-h PG  $\geq 200 \text{ mg/dL}$  ( $11.1 \text{ mmol/L}$ ) during OGTT.
  - C.  $\text{HbA1C} \geq 6.5\%$  ( $48 \text{ mmol/mol}$ ).
  - D. In a patient with classic symptoms of hyperglycemia or hyperglycemic crisis, a random plasma glucose  $\geq 200 \text{ mg/dL}$  ( $11.1 \text{ mmol/L}$ ).
- (3) Patients with any lipid lowering drugs in the previous three months, including but not limited to statins, bile acid sequestrants, cholesterol absorption inhibitors, PCSK9 inhibitors, nicotinic acid, fibric acid derivatives, fibrates, other traditional Chinese medicine, and n-3 fatty acids.
- (4) Patients with any antidiabetic drugs.
- (5) Contraindications to XZK or Atorvastatin:
  - A. Allergic to XZK or Atorvastatin.
  - B. Pregnancy or breastfeeding
- (6) Uncontrolled hypertension (systolic blood pressure  $\geq 180 \text{ mm Hg}$  and/ or diastolic blood pressure  $\geq 110 \text{ mm Hg}$ ) at screening.
- (7) Active liver disease or hepatic dysfunction, including continuously elevated liver transaminase due to unknown causes. Abnormal liver function test at baseline ( $\text{ALT}$  or  $\text{AST} > 3 \times \text{ULN}$ ).
- (8) Known renal dysfunction or elevated serum creatinine levels at baseline (with an  $\text{eGFR} \leq 60 \text{ mL/min/1.73 m}^2$ ).
- (9) Other endocrine diseases that might influence the levels of lipid or lipoprotein, such as hypothyroidism.
- (10) Patient has participated in clinical trials of other drugs in the past three months.
- (11) Previous statin treatment causes creatine kinase (CK) increased by 10 times the ULN, or myalgia myopathy (muscle pain or muscle weakness, accompanied by Creatine phosphokinase (CK) exceeds 10 times the ULN)
- (12) Estimated life expectancy  $< 6$  months at the time of enrollment
- (13) Abuse of alcohol, or history of alcohol abuse.

(14) Close affiliation with the investigators, e.g., a close relative for the investigator, dependent person (e.g., employee or student of the investigators)