Identify adults with Down syndrome aged ≥50 in GG&Co, Lothian, Tayside, via primary care, Down Syndrome Scotland, local services, etc., and send information.

Telephone call with adults with Down syndrome aged ≥50/carers to answer their questions and check whether they should be invited to participate

N~100

Home visit to recruit, collect baseline data on cognitive function, adaptive behaviour and health. Randomize, stratified by age (<55 years or ≥55 years), APO E e4, cholesterol (<5 or ≥5mmol/l)

N=60

Meet exclusion criteria

Exclude

Simvastatin 40mg OD
N=30

Placebo
N=30

Clinical and blood assessment for ARs after 6-12 weeks of drug. AEs assessed every 3 months

Clinical and blood assessment for ARs after 6-12 weeks of placebo. AEs assessed every 3 months

Cognitive function and general health assessed after 12 months of drug. N~25

Cognitive function and general health assessed after 12 months of placebo. N~25

Nested qualitative study
N=10, plus N=10 who are not RCT participants

Exclusion criteria:
1) Failure to gain consent
2) Unable to comply with the protocol
3) Dementia at baseline
4) Diabetes
5) Atherosclerotic disease
6) At risk of cardiovascular disease
7) Liver disease
8) Chronic renal insufficiency
9) Prescribed: statin, fibrates; nicotinic acid; cyclosporine, triazole antifungals, including fluconazole,itraconazole, posaconazole; ketoconazole, voriconazole; miconazole oral gel, macrolide antibiotics, including erythromycin, clarithromycin, telithromycin; danazol; fusidic acid; HIV protease inhibitors, e.g. nefilnavir; nefazodone; verapami; amiodarone; warfarin; diltiazem; amlopidine; moderate CYP3A4 inhibitors if the person lives alone or with only part-time paid support; Hepatitis C protease inhibitors, e.g. boceprivir, telaprevir.
10) Previous statin SAR
11) Unable or unwilling to avoid consumption of grapefruit juice
12) Alcohol use >21units/week for men or >14 units/week for women.