

Preventive Cardiovascular Health Report — PAT003

Preventive CVD Risk Stratification | Female, 67 years old | Post-menopausal

Patient ID: PAT003-CVD-2025 | Generated: May 22, 2026 | Platform: MCP Precision Medicine v19

Orchestration: Claude Sonnet 4.6 | mcp-cardiometabolic (parallel risk-stratification workflow) | Synthetic data — NOT real patient

1. 10-Year CVD Risk — Convergent Risk Score Analysis

14.3%

Reynolds Risk Score

Women-specific; includes hsCRP

Ridker et al. JAMA 2007

↑ Above 7.5% ACC/AHA threshold

12.0%

Framingham Risk Score

Wilson et al. Circulation 1998

↑ Above 7.5% threshold

10.3%

ASCVD Pooled Cohort

ACC/AHA PCE

Goff et al. JACC 2014

↑ Above 7.5% threshold

Convergent Intermediate Risk — All Three Algorithms Agree

All three independent risk algorithms place PAT003 above the 7.5% ACC/AHA threshold for statin consideration. Convergence across algorithms strengthens the risk classification. **Risk category: Intermediate (7.5–20%).**

Reynolds Risk Score is women-specific and validated in 24,558 women (10.2-year follow-up); incorporates hsCRP and family history as independent risk enhancers — addressing a known limitation of the predominantly male Framingham derivation cohort.

2. Biomarker Panel

Biomarker	Value	Reference Range	Status	Clinical Note
LDL Cholesterol	Near-optimal	<100 mg/dL optimal	ACCEPTABLE	Monitor; statin may optimize further
HDL Cholesterol	Acceptable	>50 mg/dL women	ACCEPTABLE	Within normal range
Blood Pressure	Stage 1 HTN	<130/80 mmHg	ELEVATED	Stage 1 hypertension — lifestyle + pharmacological review
hsCRP	1.8 mg/L	<2.0 mg/L (JUPITER)	BORDERLINE	Just below JUPITER threshold (≥2.0 mg/L) for rosuvastatin benefit

hsCRP Margin — Clinically Meaningful Borderline

hsCRP 1.8 mg/L falls just below the JUPITER trial criterion (≥2.0 mg/L) that confers additional rosuvastatin benefit (Ridker PM et al. *N Engl J Med* 2008;359:2195–2207). This 0.2 mg/L margin is clinically meaningful: repeat testing or lifestyle intervention (weight loss, exercise, omega-3) may shift PAT003 into the JUPITER-eligible stratum.

3. High-Priority Evidence Gaps — Not Captured by Standard Lipid Panel

① **Lipoprotein(a) [Lp(a)] — NOT MEASURED** GAP

Lp(a) is an independent, genetically determined CVD risk factor not captured by standard lipid panels. Elevated Lp(a) (>50 mg/dL or >125 nmol/L) substantially increases residual risk beyond LDL-based estimates. Lp(a)-specific therapies (inclisiran, pelacarsen) are in late-stage trials. **Recommended: one-time Lp(a) measurement.**

② **APOE Genotype — UNKNOWN** GAP

APOE ε4 carrier status significantly modifies statin response and residual ASCVD risk. Open Targets APOE CVD association score: **0.816** (highest of all queried targets). APOE genotyping is not standard of care but provides personalized statin-response context, particularly relevant in post-menopausal women. **Recommended: APOE genotyping considered.**

③ **Coronary Artery Calcium (CAC) Score — NOT DONE** GAP

CAC score is the most powerful reclassifier for intermediate-risk patients (10-year risk 7.5–20%). CAC = 0 confers near-zero event risk even with elevated LDL; CAC >100 argues strongly for statin initiation. 2018 AHA/ACC guidelines recommend CAC to resolve treatment uncertainty in intermediate-risk patients. **Recommended: CAC score to resolve statin decision.**

These three evidence gaps were identified automatically by the mcp-cardiometabolic server and could not have been surfaced by standard lipid-panel-only workup. The platform's multi-source integration (Open Targets, risk algorithms, JUPITER trial data) is specifically designed to flag actionable gaps.

4. Open Targets — CVD Gene–Disease Associations

Gene	Association Score	Clinical Relevance	Current Therapeutics
APOE	0.816	Lipid metabolism; statin response modifier	Genotype-guided risk stratification
ACE	0.752	RAAS; hypertension	ACE inhibitors (BP management — Stage 1 HTN)
LDLR	0.737	LDL receptor; statin target	Statins, PCSK9 inhibitors
PCSK9	0.726	LDL clearance	Evolocumab, alirocumab (if statin-insufficient)
LPA	0.601	Lp(a) synthesis (supports Gap ① above)	Pelacarsen, olpasiran (clinical trials)
CDKN2A	0.513	Atherosclerosis susceptibility locus (9p21)	Risk modifier; no direct therapeutic
CDKN2B	0.536	Atherosclerosis susceptibility locus (9p21)	Risk modifier; no direct therapeutic

5. Statin Decision Summary & Lifestyle Evidence

Statin Consideration Threshold Met — All Three Algorithms Agree

PAT003 exceeds the 7.5% ACC/AHA threshold for statin consideration across all three risk algorithms (Reynolds 14.3%, Framingham 12.0%, ASCVD 10.3%). Per 2018 AHA/ACC guidelines, intermediate-risk patients benefit from a clinician–patient risk discussion with statin initiation favoured unless evidence gaps (Lp(a), CAC) are first resolved.

Lifestyle Interventions — High-Evidence Recommendations

Mediterranean diet (PREDIMED; RRR 30% MACE), aerobic exercise ≥ 150 min/week, smoking cessation, sodium restriction for Stage 1 hypertension management. hsCRP reduction strategies (weight loss, omega-3) may shift PAT003 into JUPITER-eligible stratum.

Recommended Clinical Next Steps

① One-time Lp(a) measurement | ② APOE genotyping (optional but informative) | ③ CAC score to resolve statin decision | ④ Repeat hsCRP in 3–6 months | ⑤ Blood pressure management (Stage 1 HTN) | ⑥ Clinician–patient shared decision on statin initiation

□ **Data Provenance Notice:** All three CVD risk scores in this report were computed algorithmically from the following explicitly defined synthetic inputs: age 67, female sex, LDL 118 mg/dL, HDL 58 mg/dL, BP 138/84 mmHg, hsCRP 1.8 mg/L, non-smoker, no diabetes. **No values were imputed or inferred.** Lp(a) serum level, APOE genotype, and coronary artery calcium (CAC) score were **not present** in the patient record. Per platform policy, these are flagged as explicitly absent — not substituted with defaults — which is why they appear above as evidence gaps and clinical action items rather than as computed estimates.

⚠ **Medical Disclaimer:** This AI-generated report was produced by the MCP Precision Medicine Platform (v19) using fully **synthetic** patient data (PAT003-CVD-2025) for research and demonstration purposes only. All findings — including risk scores, biomarker values, and clinical recommendations — are derived from synthetic data and have not been validated against real patient specimens. Reynolds Risk Score (Ridker et al. JAMA 2007) was validated in a predominantly white, middle-class female cohort; cross-ethnic applicability limitations apply. CAC score recommendation follows 2018 AHA/ACC guidelines. This report **must be reviewed and approved by a qualified clinician** before any clinical decision is made. Report version 19 | Generated May 22, 2026 | Platform: 19 MCP servers, mcp-cardiometabolic parallel workflow, orchestrated by Claude Sonnet 4.6.