cvi42® | Plaque

See More Than Stenosis. Quantify Risk. Personalize Care.

AI-enabled coronary plaque quantification directly from your CCTA.

For more information, contact us at **sales@circlecvi.com**
or scan the QR code.

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At the **Heart** of
IMAGING

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Computed Tomography

CVi42®

Why CT plaque quantification?

Traditional stenosis assessment doesn't tell the whole story.

CT-derived plaque quantification provides a **comprehensive, objective,** and **actionable** assessment of coronary atherosclerosis by quantifying **total, non-calcified,** and **high-risk plaque**[1]. This insight enhances diagnosis, improves risk stratification, and informs more personalized care.

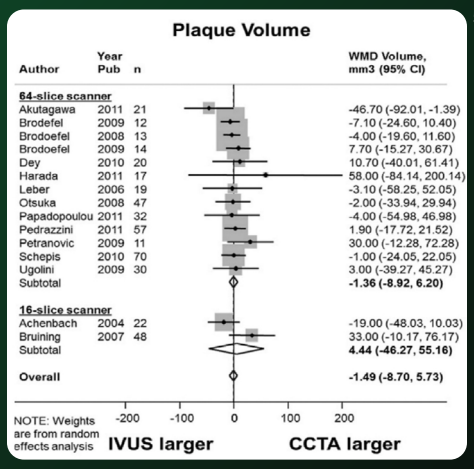
- **Proven Predictive Value**
  - Offers **superior prognostic information** compared to stenosis-based or traditional risk-factor assessments[8]
  - Identifies **High-Risk features** such as low-attenuation plaques and remodeling index which independently predict adverse cardiac events[2,3,4]

> *LAP [Low Attenuation Plaque] <60 HU and NR [Napkin-ring] sign are the most powerful MACE [Major Adverse Cardiac Events] predictors.*[2]

> *Our analysis of 20,299 patients from the international CONFIRM registry reaffirms the predictive value of segmental plaque burden above and beyond the degree of stenosis.*[8]

- **Reliable and Reproducible**
  - Demonstrates **strong concordance with invasive imaging** (IVUS), in assessing plaque volume and composition[5]
  - **AI-enhanced volumetric analysis** ensures fast, consistent, and reproducible results.

> *Current evidence reveals that quantification of atherosclerotic plaque using CCTA is highly concordant with IVUS measurements as demonstrated by meta-analysis of 42 studies including 1360 patients.*[5]



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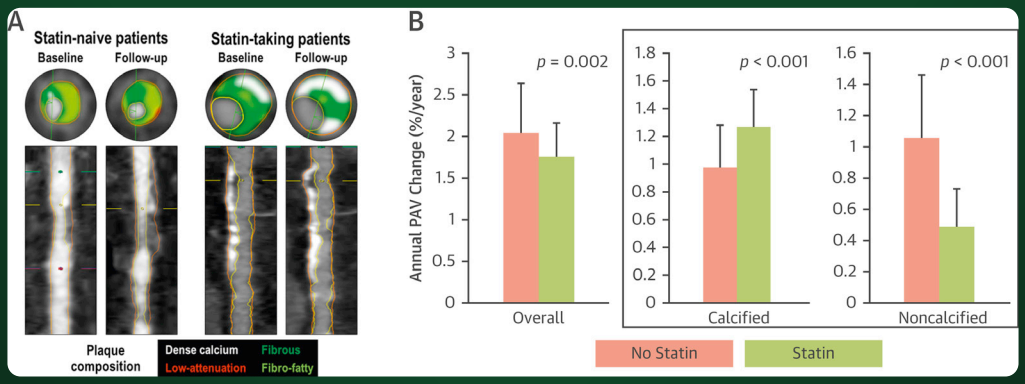
- **Personalized Treatment & Longitudinal Monitoring**
  - Enables tracking of **treatment-induced changes**, such as statin-induced plaque regression[6,7]
  - Detects **vulnerable plaque features** (e.g., low-attenuation <30 HU, positive remodeling) linked to elevated event risk[10]
  - **Engage patients with visual evidence:** Support patient adherence with intuitive, visual explanations of disease progression

> *The patients demonstrating positively remodeled coronary segments with low-attenuation plaques on CT angiography were at a higher risk of ACS developing over time when compared with patients having lesions without these characteristics.*[10]

> *Statins were associated with slower progression of overall coronary atherosclerosis volume, with increased plaque calcification and reduction of high-risk plaque features.*[7]



[7]

- **Better Cardiovascular Outcomes Through Prevention**
  - CCTA offers incremental predictive value beyond coronary calcification and clinical scores, by assessing non-calcified and low-attenuation plaque burden[9]
  - CCTA has been shown to modestly encourage healthier lifestyle choices, greater acceptance of preventive treatments, and positive changes in risk factors[11].

> *Low-attenuation plaque burden was the strongest predictor of myocardial infarction (adjusted hazard ratio, 1.60 (95% CI, 1.10–2.34) per doubling; P=0.014), irrespective of cardiovascular risk score, coronary artery calcium score, or coronary artery area stenosis.*[9]

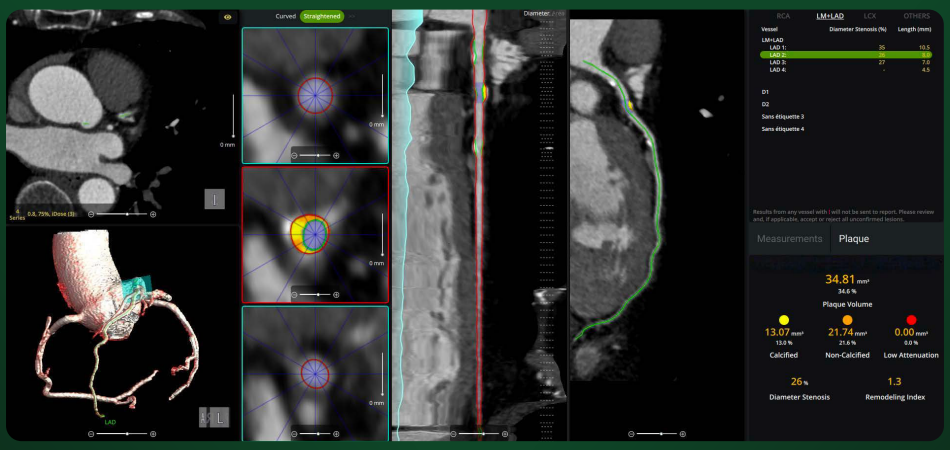
Why Choose cvi**42** | Plaque?

Fast. Reproducible. Integrated.

cvi**42** | Plaque empowers cardiac imaging teams with **AI-enabled, on-premise** quantification of atherosclerotic burden. It delivers precise measurements of plaque **volume, burden, composition,** and **distribution,** all **fully integrated** into your CT workflow.

No external processing. No extra imaging.

- **AI-Enabled Automation**
  - Automated coronary lumen and wall segmentation ensures rapid, reproducible plaque quantification
  - Per-lesion and per-vessel analysis provides detailed assessment of calcified, non-calcified, and low-attenuation plaque for precise risk stratification
  - Remodeling index calculation identifies high-risk plaques beyond stenosis severity



- **Full User Control**
  - Manual controls allow adjustment of lumen, vessel wall, and lesion annotations as needed
  - Lesion-level occlusion marking enhances detection of chronic total occlusions and supports revascularization planning
  - Option of single- or dual-reference markers allows flexibility in grading stenosis

Computed Tomography

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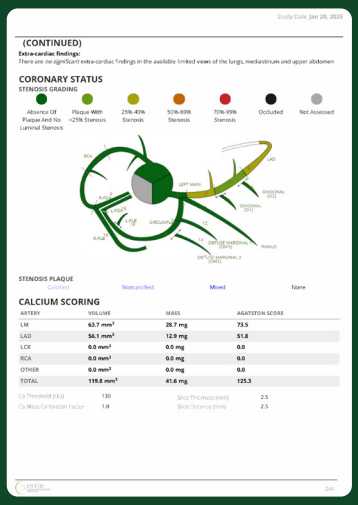
- **Smart, Actionable Reporting**
  - Generate vessel-level and total plaque summaries for fast and clear interpretation
  - Visual, patient-friendly outputs improve communication and support shared decision-making
  - Integrated CAD-RADS classification supports standardized reporting and facilitates communication across the care team



Product Snapshot

Feature	Description
Vendor Compatibility	All major vendors (GE, Siemens, Philips, Toshiba) with standard CCTA acquisition parameters
Plaque Volume (mm^3)	Calcified, Non-Calcified, Low-Attenuation, Total
Burden (%)	Calcified, Non-Calcified, Low-Attenuation, Total
Remodeling Index	Included
Stenosis Assessment	Diameter-Based, Area-Based, Lesion length
Manual Controls	Edit Lumen, Vessel wall and initialized reference markers, add lesion, measure stenosis
Total occlusion marking	Included
Single- and dual-reference stenosis measurement	Included
Reporting	Total summary and vessel-level, CAD-RADS

Ready to enhance cardiovascular care with precision plaque analysis? Bring cvi**42** | Plaque to your practice.

Contact us at **sales@circlecvi.com** to book a personalized demo or request a free trial of cvi**42** | Plaque.

References

1. Mézquita AJV, Biavati F, Falk V, et al. Clinical quantitative coronary artery stenosis and coronary atherosclerosis imaging: a Consensus Statement from the Quantitative Cardiovascular Imaging Study Group. Nat Rev Cardiol. 2023;20(10):696-714. doi:10.1038/s41569-023-00880-4
2. Feuchtner G, Kerber J, Burghard P, et al. The high-risk criteria low-attenuation plaque <60 HU and the napkin-ring sign are the most powerful predictors of MACE: a long-term follow-up study. Eur Heart J Cardiovasc Imaging. 2017;18(7):772-779. doi:10.1093/ehjci/jew167
3. Deseive S, Straub R, Kupke M, et al. Quantification of coronary low-attenuation plaque volume for long-term prediction of cardiac events and reclassification of patients. J Cardiovasc Comput Tomogr. 2018;12(2):118-124. doi:10.1016/j.jcct.2018.01.002
4. Williams MC, Moss AJ, Dweck M, et al. Coronary Artery Plaque Characteristics Associated With Adverse Outcomes in the SCOT-HEART Study. J Am Coll Cardiol. 2019;73(3):291-301. doi:10.1016/j.jacc.2018.10.066
5. Shaw LJ, Blankstein R, Bax JJ, et al. Society of Cardiovascular Computed Tomography / North American Society of Cardiovascular Imaging - Expert Consensus Document on Coronary CT Imaging of Atherosclerotic Plaque. J Cardiovasc Comput Tomogr. 2021;15(2):93-109. doi:10.1016/j.jcct.2020.11.002
6. Zeb I, Li D, Nasir K, et al. Effect of statin treatment on coronary plaque progression - a serial coronary CT angiography study. Atherosclerosis. 2013;231(2):198-204. doi:10.1016/j.atherosclerosis.2013.08.019
7. Lee SE, Chang HJ, Sung JM, et al. Effects of Statins on Coronary Atherosclerotic Plaques: The PARADIGM Study. JACC Cardiovasc Imaging. 2018;11(10):1475-1484. doi:10.1016/j.jcmg.2018.04.015
8. Hadamitzky M, Achenbach S, Al-Mallah M, et al. Optimized prognostic score for coronary computed tomographic angiography: results from the CONFIRM registry (Coronary CT Angiography Evaluation For Clinical Outcomes: An International Multicenter Registry). J Am Coll Cardiol. 2013;62(5):468-476. doi:10.1016/j.jacc.2013.04.064
9. Williams MC, Kwiecinski J, Doris M, et al. Low-Attenuation Noncalcified Plaque on Coronary Computed Tomography Angiography Predicts Myocardial Infarction: Results From the Multicenter SCOT-HEART Trial (Scottish Computed Tomography of the HEART). Circulation. 2020;141(18):1452-1462. doi:10.1161/CIRCULATIONAHA.119.044720
10. Motoyama S, Sarai M, Harigaya H, et al. Computed tomographic angiography characteristics of atherosclerotic plaques subsequently resulting in acute coronary syndrome. J Am Coll Cardiol. 2009;54(1):49-57. doi:10.1016/j.jacc.2009.02.068