

TURIN,
October
25th-27th
2018
Starhotels
Majestic

GIORNATE CARDIOLOGICHE TORINESI

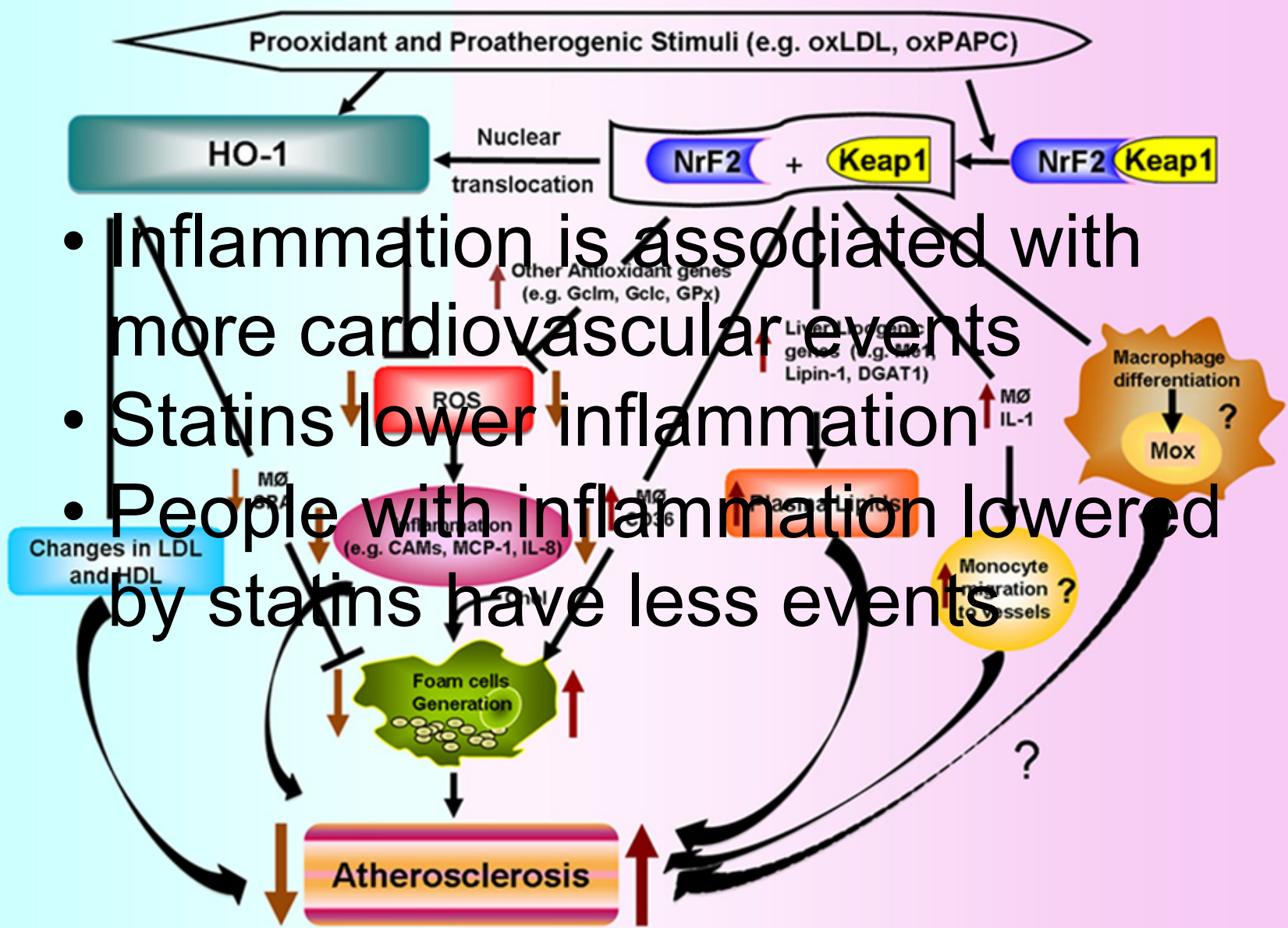


Should we Just Treat Inflammation?

Francisco Lopez-Jimenez, M.D., M.Sc, FACC, FAHA
Professor of Medicine, Mayo Medical School
Chair, Division of Preventive Cardiology
Co-Director, Artificial Intelligence in Cardiology
Director of Research, Dan Abraham Healthy Living Center

Outline

- Is inflammation related to CVD risk?
- Does inflammation cause CVD?
- Inflammation as a therapeutic target
- Future directions

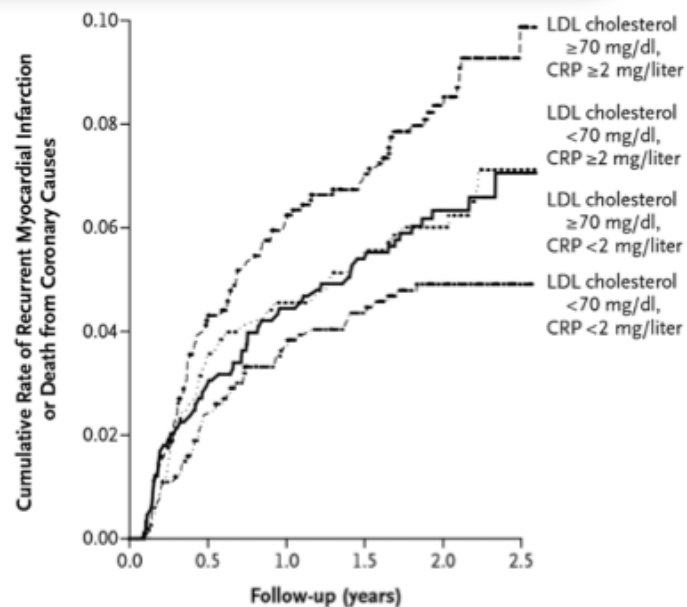
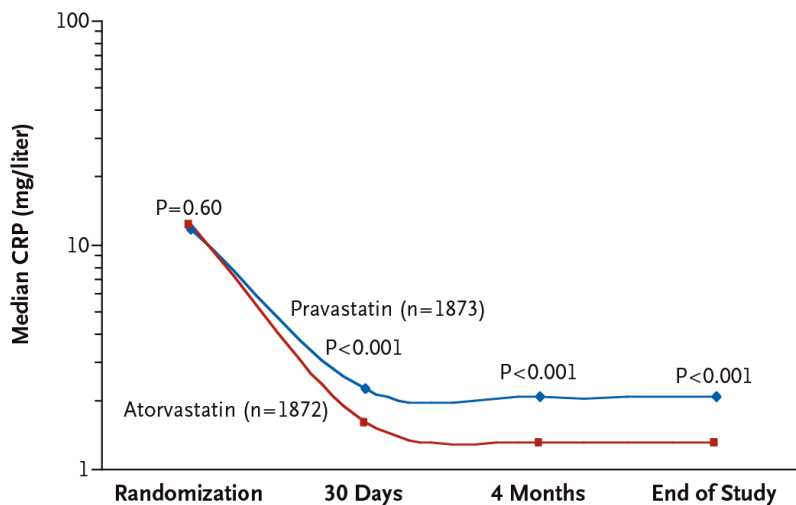


- Inflammation is associated with more cardiovascular events
- Statins lower inflammation
- People with inflammation lowered by statins have less events

ORIGINAL ARTICLE

C-Reactive Protein Levels and Outcomes after Statin Therapy

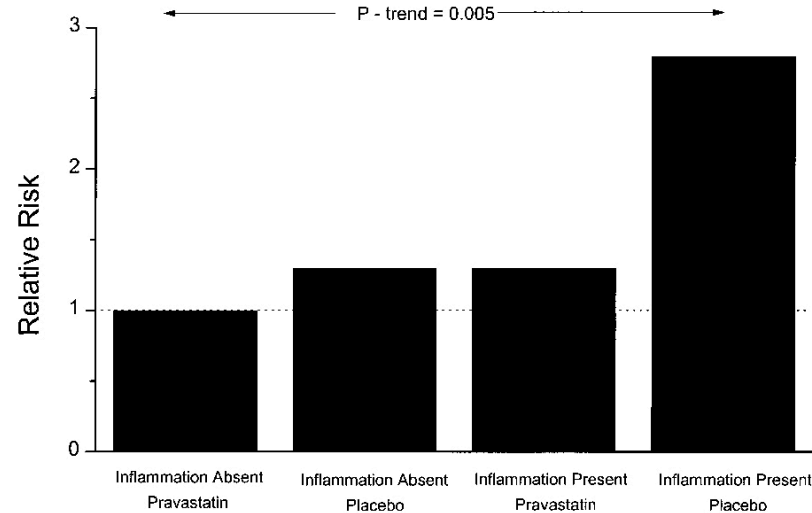
Paul M Ridker, M.D., Christopher P. Cannon, M.D., David Morrow, M.D.,
Nader Rifai, Ph.D., Lynda M. Rose, M.S., Carolyn H. McCabe, B.S.,
Marc A. Pfeffer, M.D., Ph.D., and Eugene Braunwald, M.D.,
for the Pravastatin or Atorvastatin Evaluation and Infection Therapy–
Thrombolysis in Myocardial Infarction 22 (PROVE IT–TIMI 22) Investigators

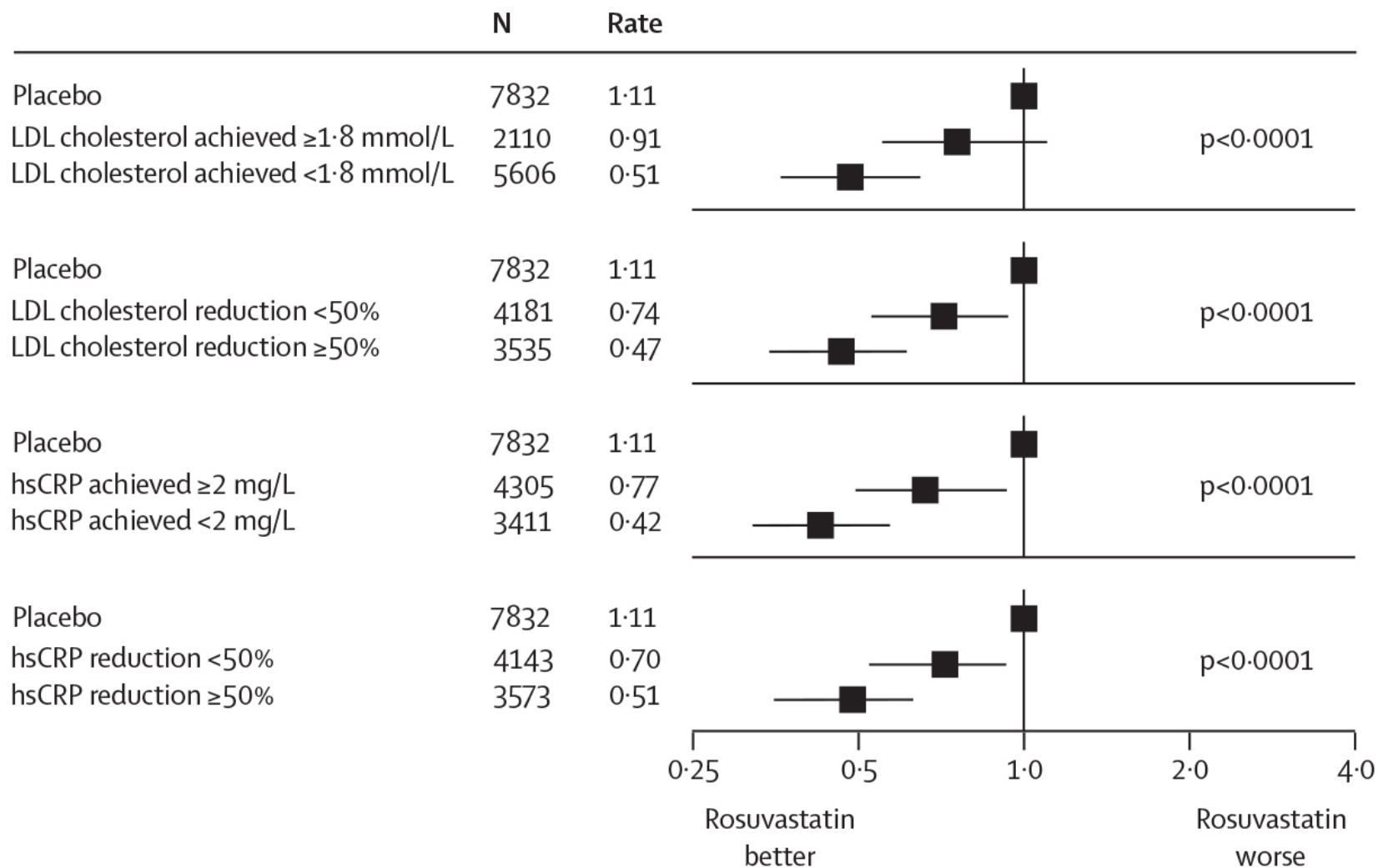


Clinical Investigation and Reports

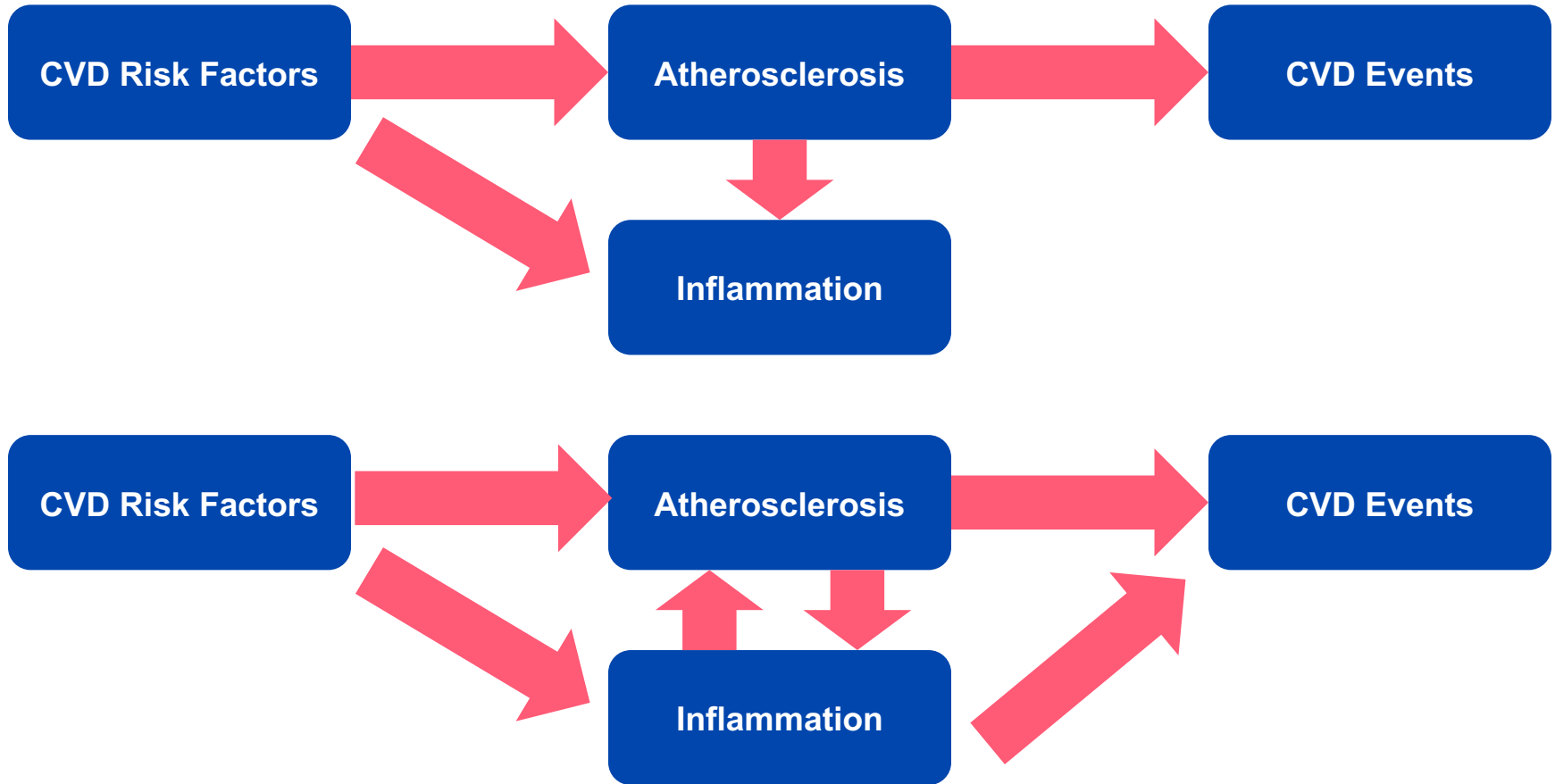
Inflammation, Pravastatin, and the Risk of Coronary Events After Myocardial Infarction in Patients With Average Cholesterol Levels

Paul M. Ridker, MD; Nader Rifai, PhD; Marc A. Pfeffer, MD; Frank M. Sacks, MD;
Lemuel A. Moye, MD, PhD; Steven Goldman, MD; Greg C. Flaker, MD; Eugene Braunwald, MD;
for the Cholesterol and Recurrent Events (CARE) Investigators





Inflammation and CVD Events Marker or Cause?



Canakinumab Antiinflammatory Thrombosis Outcome Study (CANTOS) Trial

The NEW ENGLAND
JOURNAL *of* MEDICINE

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Antiinflammatory Therapy with Canakinumab for Atherosclerotic Disease

P.M. Ridker, B.M. Everett, T. Thuren, J.G. MacFadyen, W.H. Chang, C. Ballantyne, F. Fonseca, J. Nicolau, W. Koenig, S.D. Anker, J.J.P. Kastelein, J.H. Cornel, P. Pais, D. Pella, J. Genest, R. Cifkova, A. Lorenzatti, T. Forster, Z. Kopalava, L. Vida-Simiti, M. Flather, H. Shimokawa, H. Ogawa, M. Dellborg, P.R.F. Rossi, R.P.T. Troquay, P. Libby, and R.J. Glynn, for the CANTOS Trial Group*

P

10,061 patients with prior MI and
HS-CRP ≥ 2 mg/l

I

Kanakinumab 50, 150, and 300 mg
every 3 months

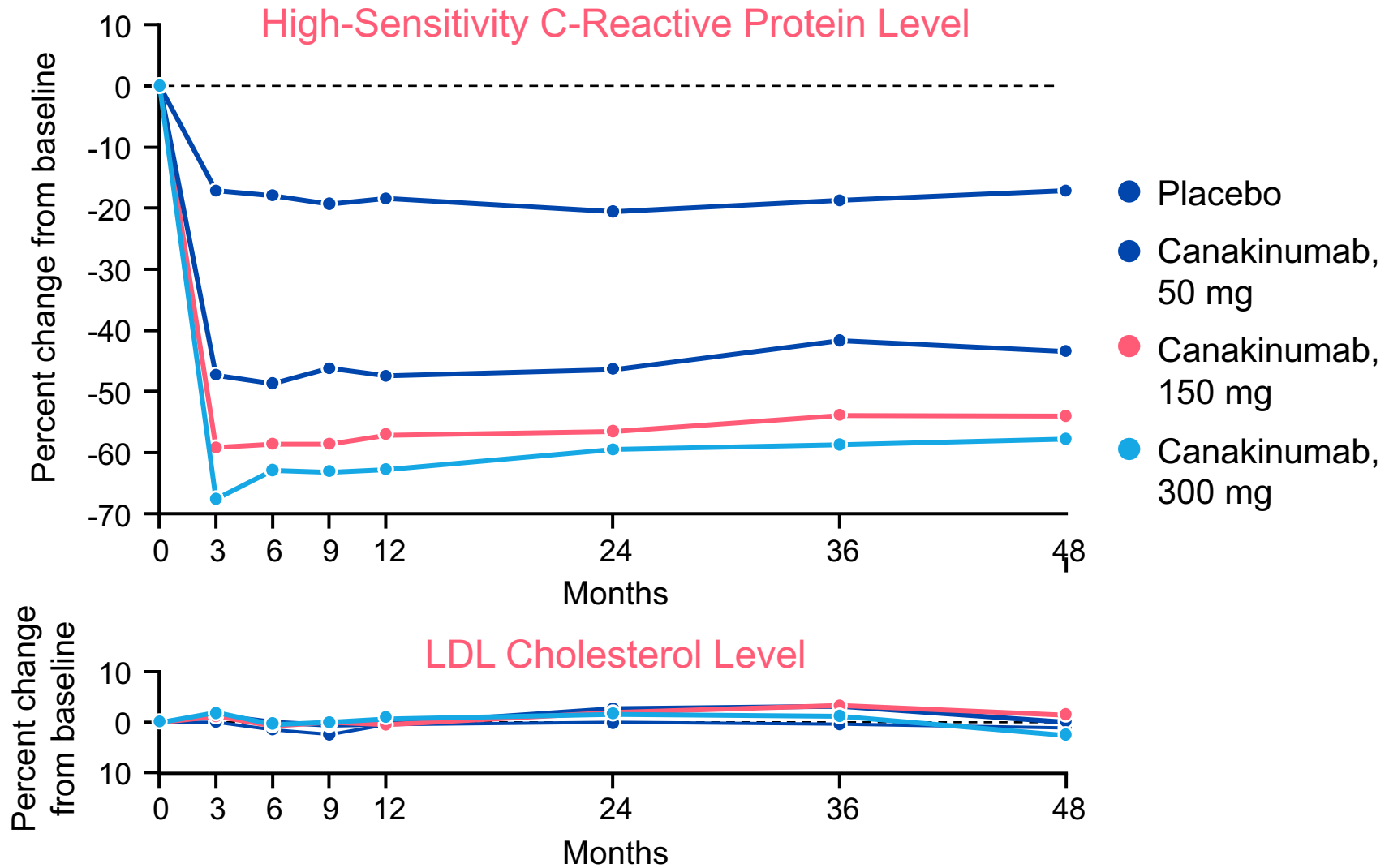
C

Placebo

O

Myocardial infarction, stroke or CVD death

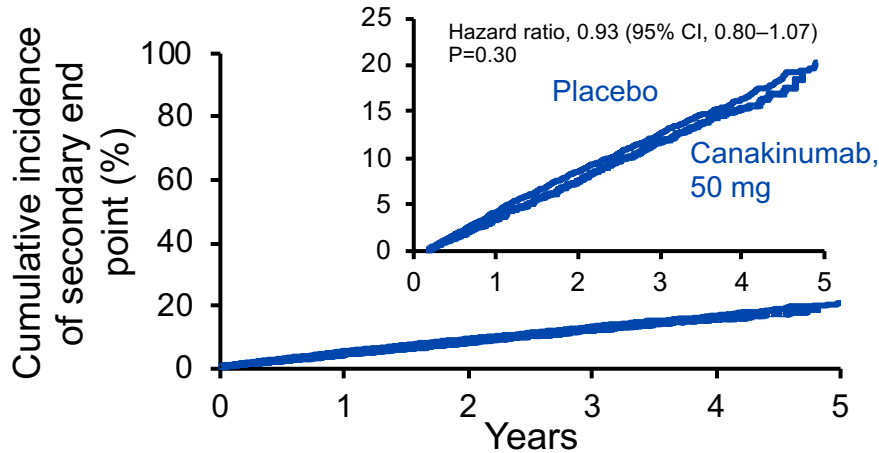
Main Results



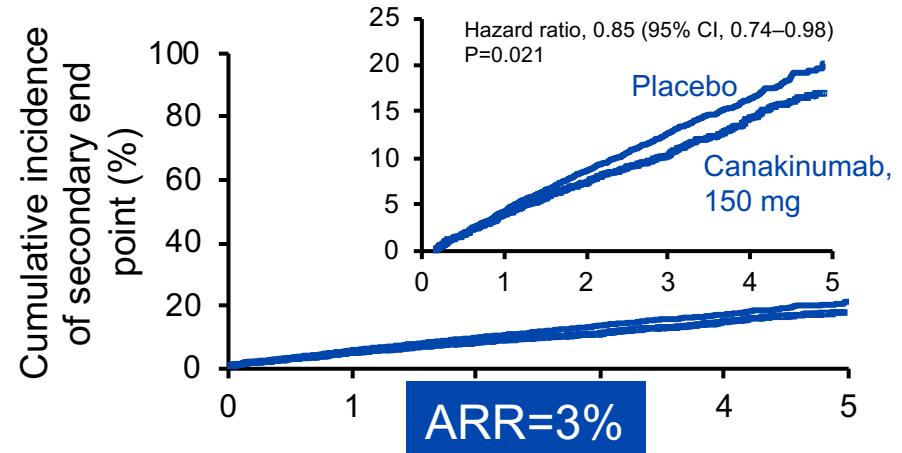
Ridker et al: N Engl J Med 377:1119, 2017

Cumulative Incidence of the Primary End Point and the Key Secondary Cardiovascular End Point

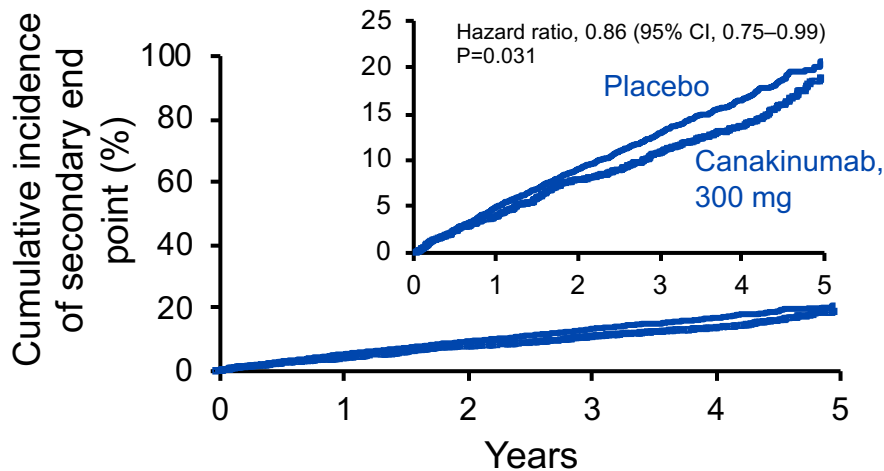
Primary End Point with Canakinumab, 50 mg, vs Placebo



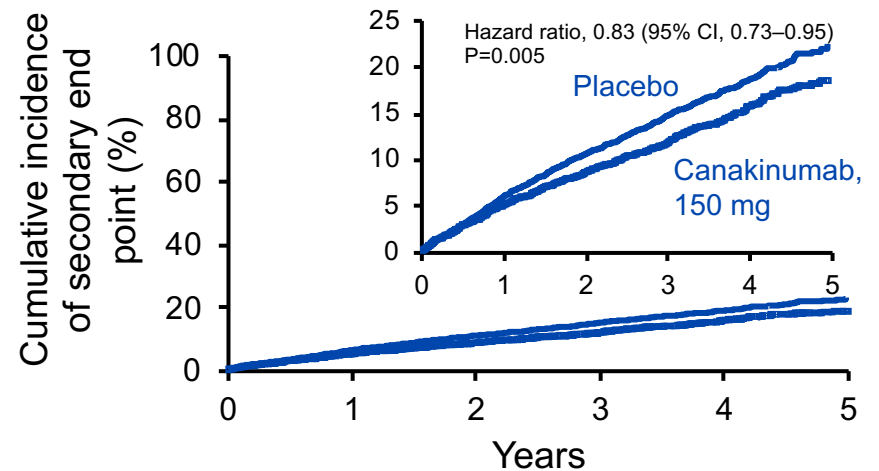
Primary End Point with Canakinumab, 150 mg, vs Placebo



Primary End Point with Canakinumab, 300 mg, vs Placebo



Key Secondary End Point with Canakinumab, 150 mg, vs Placebo



Ridker et al: N Engl J Med 377:1119, 2017

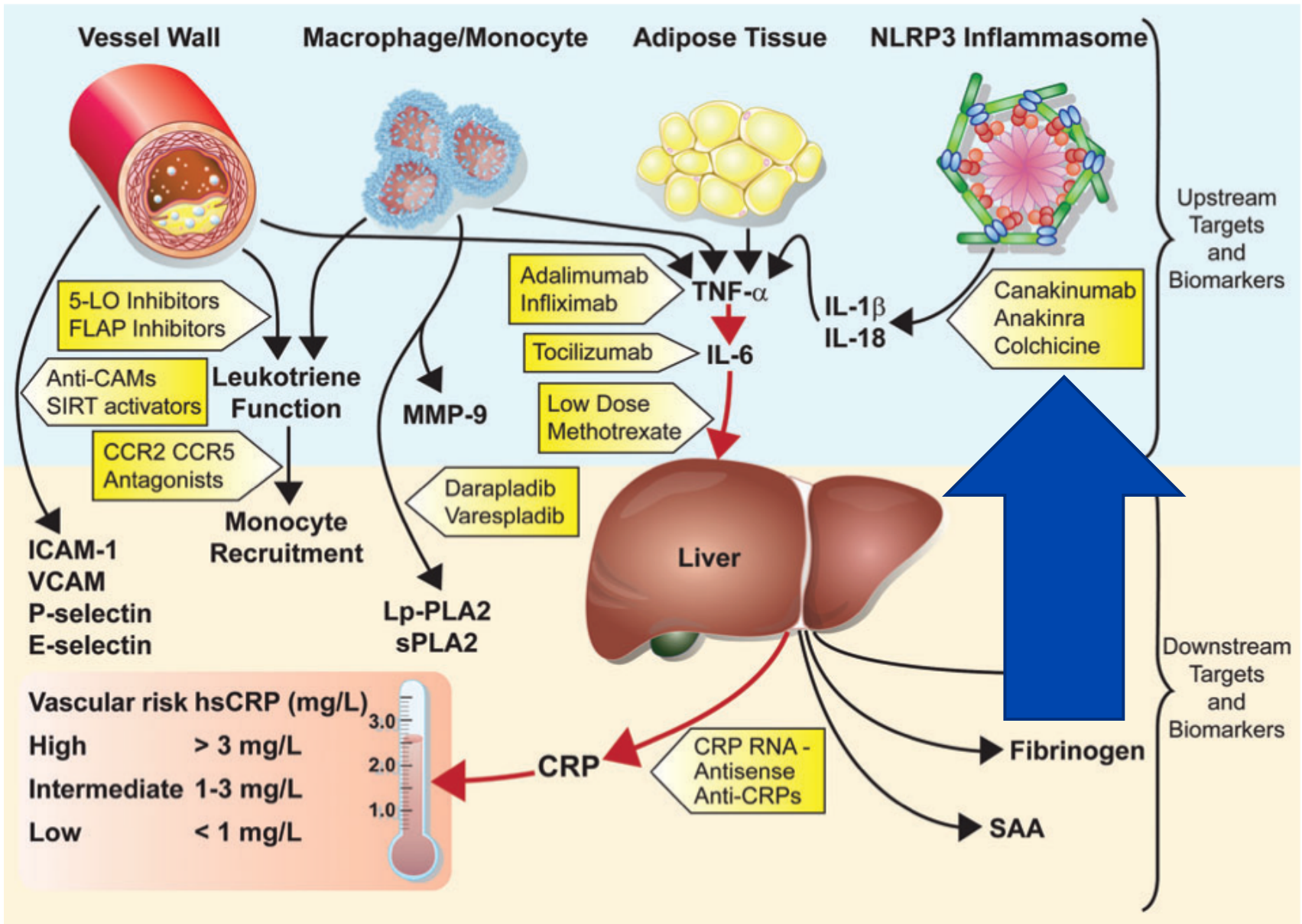
Take Home Messages

Antiinflammatory therapy targeting the interleukin-1 β lowers the rate of recurrent cardiovascular events

The benefit of canakinumab is independent of effect on lipids

Lower incidence of cancer: Chance or real?

Canakinumab increases rates of infection, no effect on total mortality



Effect of exercise training on C-reactive protein: a systematic review and meta-analysis of randomised and non-randomised controlled trials

Michael V Fedewa,¹ Elizabeth D Hathaway,² Christie L Ward-Ritacco³

26% reduction of CRP with exercise
38% if associated with weight loss

Article

Adherence to the Mediterranean Diet and Inflammatory Markers



Antoni Sureda ^{1,2}, Maria del Mar Bibiloni ^{1,2}, Alicia Julibert ^{1,2}, Cristina Bouzas ¹, Emma Argelich ¹, Isabel Llompart ^{1,2}, Antoni Pons ^{1,2}  and Josep A. Tur ^{1,2,*} 

Table 2. Levels of inflammatory markers in adult male subjects according to the adherence to the MDP.

Adherence to MDP (%)	<i>n</i>	Adiponectin (µg/mL)	Leptin (ng/mL)	TNF-α (pg/mL)	PAI-1 (ng/mL)	hs-CRP (mg/mL)
18–65 years old						
Above median value (≥50%)	40	13.1 ± 6.7	9.4 ± 7.3	7.9 ± 2.4	201 ± 29	0.17 ± 0.18
Under median value (<50%)	33	9.5 ± 2.4 *	16.0 ± 9.5 *	12.3 ± 3.0 *	262 ± 32 *	0.41 ± 0.42 *

Ideal Cardiovascular Health and Incident Cardiovascular Disease: Heterogeneity Across Event Subtypes and Mediating Effect of Blood Biomarkers: The PRIME Study

Bamba Gaye, PhD;* Muriel Tafflet, MSc;* Dominique Arveiler, MD; Michèle Montaye, MD; Aline Wagner, MD; Jean-Bernard Ruidavets, MD; Frank Kee, MD, PhD; Alun Evans, MD, PhD; Philippe Amouyel, MD, PhD; Jean Ferrieres, MD, MPH; Jean-Philippe Empana, MD, PhD

CVH Status	N	Inflammatory Blood Biomarkers	
		Hs-CRP (mg/L)	IL-6 (pg/mL)
Global			
Poor	472	2.68 (1.42–4.92)	0.29 (0–0.82)
Intermediate	632	2.09 (1.04–4.49)	0.22 (0–0.60)
Ideal	86	1.61 (0.86–2.98)	0.21 (0–0.52)
<i>P</i> for trend		<0.0001	0.08

Conclusions

- Inflammation is associated to atherosclerosis
- Inflammation is in the causal path
- Medications reducing inflammation reduce CV events
- Diet, exercise and cardiovascular health relate to lower inflammation



Gratzie!

@DrLopezHeart