

Johannes Zeller: Entwicklung eines neuartigen Phosphocholin-mimetischen Inhibitors des proinflammatorischen Konformationsänderung von C-reaktiven Protein

1. Ries W, Torzewski J, Heigl F, Pfluecke C, Kelle S, Darius H, Ince H, Mitzner S, Nordbeck P, Butter C et al (2021) C-Reactive protein apheresis as anti-inflammatory therapy in acute myocardial infarction: Results of the CAMI-1 Study. *Front Cardiovasc Med* 8: 591714
2. Schumann C, Heigl F, Rohrbach IJ, Sheriff A, Wagner L, Wagner F, Torzewski J (2022) A report on the first 7 sequential patients treated within the C-reactive protein apheresis in COVID (CA-COV) registry. *Am J Case Rep* 23: e935263
3. Pepys MB, Hirschfield GM, Tennent GA, Gallimore JR, Kahan MC, Bellotti V, Hawkins PN, Myers RM, Smith MD, Polara A et al (2006) Targeting C-reactive protein for the treatment of cardiovascular disease. *Nature* 440: 1217–1221
4. Gill R, Kemp JA, Sabin C, Pepys MB (2004) Human C-reactive protein increases cerebral infarct size after middle cerebral artery occlusion in adult rats. *J Cereb Blood Flow Metab* 4: 1214–1218
5. Thiele JR, Habersberger J, Braig D, Schmidt Y, Goerendt K, Maurer V, Bannasch H, Scheichl A, Woollard KJ, von Dobschütz E et al (2014) Dissociation of pentameric to monomeric C-reactive protein localizes and aggravates inflammation: In vivo proof of a powerful proinflammatory mechanism and a new anti-inflammatory strategy. *Circulation* 130: 35–50
6. Griselli M, Herbert J, Hutchinson WL, Taylor KM, Sohail M, Krausz T, Pepys MB (1999) C-reactive protein and complement are important mediators of tissue damage in acute myocardial infarction. *J Exp Med* 90: 1733–1740
7. Padilla ND, van Vliet AK, Schoots IG, Seron MV, Maas MA, Peltenburg EEP, de Vries A, Niessen HWM, Hack CE, van Gulik TM (2007) C-reactive protein and natural IgM antibodies are activators of complement in a rat model of intestinal ischemia and reperfusion. *Surgery* 142: 722–733
8. McFadyen JD, Kiefer J, Braig D, Loseff-Silver J, Potempa LA, Eisenhardt SU, Peter K (2018) Dissociation of C-reactive protein localizes and amplifies inflammation: Evidence for a direct biological role of C-reactive protein and its conformational changes. *Front Immunol* 9: 1351
9. Thiele JR, Zeller J, Kiefer J, Braig D, Kreuzaler S, Lenz Y, Potempa LA, Grahmmer F, Huber TB, Huber-Lang M et al (2018) A conformational change in C-reactive protein enhances leukocyte recruitment and reactive oxygen species generation in ischemia/reperfusion injury. *Front Immunol* 9: 675
10. Kiefer J, Zeller J, Schneider L, Thomé J, McFadyen JD, Hoerbrand IA, Lang F, Deiss E, Bogner B, Schaefer A-L et al (2024) C-reactive protein orchestrates acute allograft rejection in vascularized composite allotransplantation via selective activation of monocyte subsets. *J Adv Res* 9: S2090-1232(24)00291-1; doi: 10.1016/j.jare.2024.07.007
11. Wu Y, Potempa LA, El Kebir D, Filep JG (2015) C-reactive protein and inflammation: conformational changes affect function. *Biol Chem* 396: 1181–1197
12. Braig D, Nero TL, Koch H-G, Kaiser B, Wang X, Thiele JR, Morton CJ, Zeller J, Kiefer J, Potempa LA et al (2017) Transitional changes in the CRP structure lead to the exposure of proinflammatory binding sites. *Nat Commun* 8: 14188
13. Eisenhardt SU, Habersberger J, Murphy A, Chen Y-C, Woollard KJ, Bassler N, Qian H, von zur Muhlen C, Hagemeyer CE, Ahrens I et al (2009) Dissociation of pentameric to monomeric C-reactive protein on activated platelets localizes inflammation to atherosclerotic plaques. *Circ Res* 105: 128–137
14. Zeller J, Cheung Tung Shing KS, Nero TL, McFadyen JD, Kripplner G, Bogner B, Kreuzaler S, Kiefer J, Horner VK, Braig D et al (2023) A novel phosphocholine-mimetic inhibits a pro-inflammatory conformational change in C-reactive protein. *EMBO Mol Med* 15: e16236
15. Filep JG (2023) Targeting conformational changes in C-reactive protein to inhibit proinflammatory actions. *EMBO Mol Med* 15: e17003