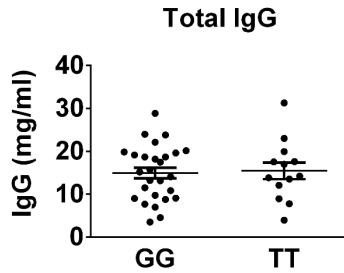


Supplementary Figure 1. Citrullination of Histones. Recombinant human histones H1, H2A, H2B, H3, and H4 were incubated in buffer alone (Nat) or citrullinated with PAD4 in buffer (Cit). 2 μ g of each histone was run by SDS-PAGE for total protein visualization by Coomassie staining and blotting for visualization of citrullination using the anti-citrulline (modified) detection kit (MilliporeSigma) according to manufacturer's instructions. Blots are representative of at least 5 replicates.

Table S1. Characteristics of Rheumatoid Arthritis (RA) and Control Subjects

| | Control | | | CCP- | | | CCP+ | | |
|--|------------|------------|------|------------|------------|------|----------------|-----------------|-------------|
| | GG (n=23) | TT (n=16) | p | GG (n=27) | TT (n=14) | p | GG (n=46) | TT (n=24) | p |
| Age, mean years (SE) | 49.5 (3.8) | 53.1 (4.6) | 0.55 | 59.3 (2.4) | 56.3 (3.6) | 0.47 | 61.2 (1.8) | 58.2 (2.3) | 0.31 |
| Sex, female (%) | 19 (82.6) | 14 (87.5) | 0.68 | 20 (74.1) | 11 (78.6) | 0.75 | 34 (73.9) | 18 (75.0) | 0.92 |
| Body Mass Index, mean (SE) | 31.5 (1.7) | 26.1 (2.4) | 0.07 | 28.7 (1.3) | 28.6 (2.4) | 0.97 | 30.0 (0.8) | 30.6 (1.6) | 0.70 |
| Smoking Status, number (%) | | | | | | | | | |
| Current smoker | 1 (4.4) | 2 (12.5) | 0.20 | 3 (11.1) | 0 (0.0) | 0.41 | 3 (6.5) | 5 (20.8) | 0.03 |
| Former smoker | 3 (13.0) | 5 (31.3) | | 9 (33.3) | 6 (42.9) | | 21 (45.7) | 4 (16.7) | |
| Never smoked | 19 (82.6) | 9 (56.3) | | 15 (55.6) | 8 (57.1) | | 22 (47.8) | 15 (62.6) | |
| Charlson Comorbidity Score, mean (SE) | 1.6 (0.4) | 1.4 (0.4) | 0.67 | 4.0 (0.6) | 3.7 (0.6) | 0.79 | 3.6 (0.3) | 3.3 (0.4) | 0.48 |
| Race/Ethnicity, number (%) | | | | | | | | | |
| White | 21 (91.3) | 13 (81.3) | 0.61 | 22 (81.5) | 12 (85.7) | 0.85 | 40 (87.0) | 17 (70.8) | 0.30 |
| Black | 0 (0.0) | 0 (0.0) | | 1 (3.7) | 1 (7.1) | | 1 (2.2) | 3 (12.5) | |
| Hispanic | 0 (0.0) | 0 (0.0) | | 1 (3.7) | 0 (0.0) | | 2 (4.4) | 2 (8.3) | |
| Native American | 1 (4.4) | 1 (6.3) | | 1 (3.7) | 1 (7.1) | | 2 (4.4) | 2 (8.3) | |
| Asian | 1 (4.4) | 2 (12.5) | | 1 (3.7) | 0 (0.0) | | 0 (0.0) | 0 (0.0) | |
| Pacific Islander | 0 (0.0) | 0 (0.0) | | 0 (0.0) | 0 (0.0) | | 0 (0.0) | 0 (0.0) | |
| Other | 0 (0.0) | 0 (0.0) | | 1 (3.7) | 0 (0.0) | | 1 (2.2) | 0 (0.0) | |
| Rheumatoid Factor Positive, number (%) | - | - | - | 5 (71.4) | 2 (28.6) | 0.59 | 33 (67.4) | 16 (32.7) | 0.70 |
| Erosive Disease, number (%) | - | - | - | 12 (54.6) | 10 (45.5) | 0.10 | 22 (75.9) | 7 (24.1) | 0.13 |
| Time Since RA Diagnosis, mean years (SE) | - | - | - | 20.0 (3.3) | 13.1 (2.7) | 0.18 | 14.9 (1.8) | 11.8 (2.0) | 0.28 |



Supplementary Figure 2. Total Serum IgG levels in CCP- Rheumatoid Arthritis Subjects. Total IgG was quantified in CCP- rheumatoid arthritis subjects using the Human IgG Total ELISA Ready-SET-Go! Kit (Thermo Fisher Scientific) according to the manufacturer's instructions. Serum IgG levels were compared between homozygotes for the G and T alleles of rs2240335 by t test with the mean \pm SEM graphed. No significant difference was seen. n=27 GG and n=13 TT.