**Supplementary Table 1: Patient Baseline Clinical Parameters**

| Demographics | RA     | Arthralgia | HC   |
|--------------|--------|------------|------|
| N=Number     | 49     | 10         | 20   |
| Age; mean, (range) | 58 (27-83) | 49 (27-68) | 38(27-49) |
| Female/Male  | 36/13  | 8/2        | 13/7 |
| DAS28, mean ± SD | 4.42 ± 1.35 | 2.36 ± 1.03 | N/A  |
| VAS, mean ± SD | 62.93 ± 27.67 | 55 ± 29.5  | N/A  |
| CRP, mean ± SD | 23.55 ± 43.27 | 4.8 ± 3.8  | N/A  |
| ACPA pos/    | 25/24  | 10/10      | N/A  |

DAS28, Disease activity score; CRP, C-reactive protein; ESR, erythrocyte sedimentation rate; VAS, Visual Analogue scale of patient pain. ACPA-anti-citrullinated protein antibody.
Supplementary Table 2: Patient Clinical Parameters Pre- and Post-MTX

| Demographics          | Pre-MTX N=18 | Post-MTX N=18 |
|-----------------------|--------------|---------------|
| N=number              | 18           | 18            |
| Age                   | 54 (27-75)   | 54(27-75)     |
| Female/Male           | 15/3         | 15/3          |
| DAS28, mean ± SD      | 4.43 ± 1.37  | 3.78 ± 1.34   |
| VAS, mean ± SD        | 58.46 ± 32.19| 53.11 ± 29.12|
| CRP, mean ± SD        | 26.97 ± 56.07| 7.5 ± 10.84   |
| ACPA pos/neg          | 10/8         | 10/8          |
| Good response (number)| N/A          | 6             |
| Moderate response (number)| N/A     | 5             |
| No response (number)  | N/A          | 7             |

DAS28, Disease activity score; CRP, C-reactive protein; ESR, erythrocyte sedimentation rate; VAS, Visual Analogue scale of patient pain. ACPA-anti-citrullinated protein antibody
| miRbase 20 name | miRNA sequence |
|----------------|----------------|
| hsa-let-7b-5p  | uagguaguagguuguguu |
| hsa-let-7d-5p  | agagguaguagguugcuagau |
| hsa-let-7e-5p  | uagguagagguuguaaguu |
| hsa-let-7g-5p  | uagguaguauuuguacagu |
| hsa-let-7i-5p  | uagguaguauuugugcugu |
| hsa-miR-10a-5p | uacccuguagacccaaauuug |
| hsa-miR-122-5p | uggagugacaguggguguu |
| hsa-miR-1246  | aauggauuuugagccag |
| hsa-miR-125a-5p| ucccgagacccuuaaccuguga |
| hsa-miR-126-3p | ucuagcguagauuaauugc |
| hsa-miR-129-5p | cuuucugcggucggcuguc |
| hsa-miR-130a-3p| cagucuaaguuuaagggc |
| hsa-miR-132-3p | uaaacaguacagccauuggc |
| hsa-miR-140-3p | uaccacaggguagacccag |
| hsa-miR-142-3p | cauaaagauagacaacau |
| hsa-miR-145-5p | guccaguuucuccaggaucuu |
| hsa-miR-146a-5p| uggagaacgaaucacggu |
| hsa-miR-150-5p | uccucaccccuugucagg |
| hsa-miR-151a-5p| uccgagacucacagcuguag |
| hsa-miR-154-3p | aaucaacagggugauaccuu |
| hsa-miR-155-5p | uuaaucuaacugugauagggg |
| hsa-miR-15a-5p | uagaugcuacauauguuuug |
| hsa-miR-15b-5p | uacgcagcacaauagcgu |
| hsa-miR-16-5p  | uacgcagcguauauugc |
| hsa-miR-16-2-3p| ccaauauacugucgcuuu |
| hsa-miR-17-5p  | caagugcuuacaguacag |
| hsa-miR-181a-5p| acaauaacgcggucggag |
| hsa-miR-181b-5p| acaauuacucucucgacag |
| hsa-miR-185-5p | uggaggaacgcaugcugu |
| hsa-miR-188-5p | uacsgagcagcagcag |
| hsa-miR-192-5p | cugaccuaaucaguaagc |
| hsa-miR-196a-5p| uagguaguauacagaggg |
| hsa-miR-200a-3p| uaaacaguacugucagauu |
| hsa-miR-203a   | guggaaauugacacauag |
| hsa-miR-205-5p | ucuuacauccacggcagcu |
| hsa-miR-20a-5p | uaaugcuauaagcagcag |
| hsa-miR-20b-5p | caagugcuacagcagcag |
| hsa-miR-21-5p  | uagcuuacacucacagu |
| hsa-miR-210-3p | cuugucgugucagcggc |
| hsa-miR-22a-3p | aacgcucguuagcaagcag |
| hsa-miR-221-3p | agcuuacacugcggcagc |
| hsa-miR-223-3p | uguacgguucuacauaccc |
| hsa-miR-23a-3p | aucacacucacagggauu |
| hsa-miR-24-3p  | uggcuuacacucacagcag |
| hsa-miR-26a-5p | uucaagauucacagcagcag |
| miRNA Accession | Sequence |
|-----------------|----------|
| hsa-miR-29a-3p  | uagcaccaucuagaucguua |
| hsa-miR-29b-3p  | uagcaccauuggaauacgguu |
| hsa-miR-29c-3p  | uagcaccauugaaaucgguua |
| hsa-miR-30a-5p  | ugaaccgauuucuccuggguuc |
| hsa-miR-30b-5p  | uguauaauuccacacuacacu |
| hsa-miR-320a    | aaaaacugggugagaggcacg |
| hsa-miR-320d    | aaaaagcgggguagagag |
| hsa-miR-339-5p  | uccuguccuccaggacucag |
| hsa-miR-33a-5p  | gcagcagcuugacucagca |
| hsa-miR-342-3p  | uccacacagaaucgcacc |
| hsa-miR-34a-5p  | uggcgagucuaacgcugguug |
| hsa-miR-375     | uuuguucguucgcucgcuga |
| hsa-miR-376b-3p | auaauagaggaauacuguau |
| hsa-miR-422a    | uccugacauacagggcuagaacg |
| hsa-miR-429     | uaaauacuguccggaaacccg |
| hsa-miR-431-3p  | caggucgucuaggccagggcuuc |
| hsa-miR-451a    | aaacgcauucuacuagag |
| hsa-miR-486-5p  | uccuguauccugcuacccgag |
| hsa-miR-494-3p  | ugaaccauacacggaaaccc |
| hsa-miR-523-5p  | cucuagagggaacgcucuucug |
| hsa-mir-744-5p  | uggcgggcuaaggccuacagca |
| hsa-miR-885-5p  | uccauuacacuacuccuc |
| hsa-miR-92a-3p  | uauugcagcuugccggccug |
| hsa-mir-93-5p   | caaagucguuucugcagguag |
| x-control       | x-control |
| blank           | none |