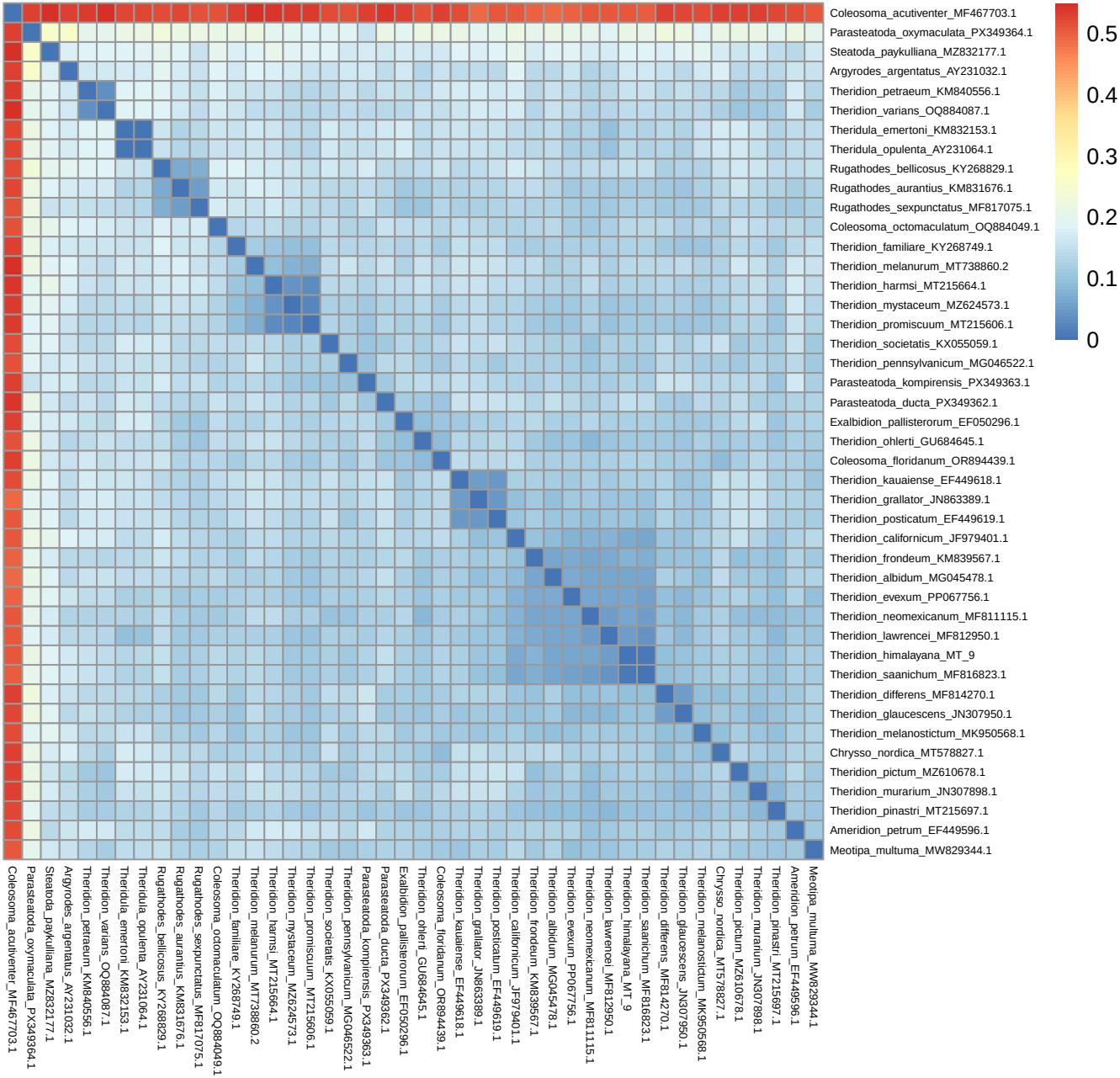Pairwise COI p−distances