Acknowledgments

I gratefully thank Prof. Toshiki Makioka, University of Tsukuba, for his invaluable suggestion and constant support through the present study. I also express my sincere thanks to Prof. Yuzuru Oguma, Prof. Isao Inouye, and Dr. Ryuichiro Machida, University of Tsukuba, for their kindly reading manuscript.

My hearty thanks are due to Dr. Nobuo Tsurusaki, University of Tottori, for his helpful technical advice on preparation of chromosomes and his constant encouragement, and Dr. Fumiaki Marno, University of Tsukuba, and Miss Yukiko Iwai, Genome Asymmetry Group DOI Bioasymmetry Project Erato, for their kind technical support on DNA quantification.

I am indebted to Dr. Hiroaki Sugita, University of Tsukuba, Dr. Rei Ueshima, University of Tokyo, Dr. Masatsugu Hatakeyama, Kobe University, Dr. Kensuke Yahata, University of Tsukuba, Dr. Hitoshi Ando, Tsurumi University, Dr. Kyosuke Ikuta, Kochi University of Technology, and Dr. Koji Tojo, University of Tsukuba, for their critical discussion and encouragement throughout this thesis work.

Thanks are also due to Mr. Yuji Takayama, Mrs. Taeko Suzuki, Mrs. Keiko Kaya, Miss Hisako Shimada, Mr. Takao Kuwada, Mrs. Hiroko Yahata, Mr. Nobuaki Kobayashi, and Mr. Hiroyuki Mitsumoto,
University of Tsukuba, Mr. Yasuhiro Nomoto, University of Tokyo, and all staff of our laboratory, for their kind assistance in collecting and rearing specimens and constant encouragement through the present study.