Peanut (*Arachis* spp.)

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Genome features

- Size: 288 Mbp
- No. of chromosomes: 20/haploid complement
  
  Cultivated peanut (*A. hypogaea*) has $2n = 4x = 40$
  
  Most *Arachis* spp. have $2n = 2x = 20$; few are tetraploid

Special features:

- Reproductive development with temporal and special separation of fertilization and fruit development; knowledge of species diversity and genomic groups; varying ecological adaptations of cultivated and wild species
- Many disease and insect pathogens associated with cultivation
- Allergens are major storage proteins and as yet unidentified proteins

Genetic resources

Germplasm collections

- ICRISAT, Hyderabad, India: n ~ 14,000 *A. hypogaea*; n ~ 200 *Arachis* spp. accessions
- CENARGEN, Brasilia, Brazil: n ~ 1000 *Arachis* spp. accessions
- USDA, Griffin, GA: n ~ 10,500 *A. hypogaea*; n ~ 750 *Arachis* spp. accessions consisting of about 70 species

Core collection

USDA, Griffin, GA n ~ 750 *A. hypogaea*

Mapping populations: one *A. hypogaea* × amphidiploid species cross (370 RFLP markers mapped); one diploid A-genome × A-genome cross of which few plants remain (117 RFLP and 167 RAPD markers mapped)

BAC libraries:

One library: A. Patterson, U. Georgia, Athens, GA with about 180,000 BACs from Florunner component line

Molecular markers:

Range of biochemical and molecular markers, including a few seed proteins and isozymes, and several hundreds of RFLPs, RAPDs, AFLPs. 70 SSR markers have been mapped.

ESUs, experimentally defined genes, and genomic sequences
ESTs: ~ 1400 from leaves and pods

Consortium or initiatives

- **Allergen Initiative**: Cooperative research group has organized to identify, analyze, and eliminate peanut allergy problem in peanut. This is a USDA, State Experiment Station, and private institution initiative.

- **Peanut Research Genomics Initiative**: Cooperative research initiative among 33 U.S. scientists to develop priorities of peanut genomics and to seek funding for research initiatives.