1. **Proof Dolly is from the nuclear donor (ND) and not egg donor:**
   - adult phenotype (ND)
   - DNA microsatellite analysis at polymorphic loci (ND)
   - duration of gestation (determined by fetal genotype: ND)
   - birth weight (determined by both maternal and fetal genotype)

2. **How able to use adult cells:**
   - Arrest diploid cells in G0: quiescence appears to make genome more accessible to reprogramming by factors present in the oocyte cytoplasm
   - How arrest: decrease fetal calf serum in culture medium from 10% to 0.5% for 5 days

3. **Nature of adult mammary gland cell:**
   - phenotype unknown - frozen cell culture (donor deceased)
   - primary culture contained differentiated cell types
     - mammary epithelia
     - myoepithelia
     - fibroblasts

   **Significance**

   "Birth of the lamb shows that during the development of that mammary cell there was no irreversible modification of genetic information required for development to term."

4. **Challenge to Dolly being an adult somatic cell clone!!**
   - Could relatively undifferentiated stem cells (possibly for regeneration of mammary gland during pregnancy) have been present in the culture?
   - Only one Dolly and the authors and others could not repeat the feat

5. **Believing Dolly was really an adult nucleus clone**
   - More microsatellite analysis—original frozen cells and donor cells
   - DNA fingerprinting—donor mammary tissue, cell line, Dolly
   - Creation of Cumulina

   *Supports the view* that development results from the sequential, systematic changes in gene expression brought about by interactions between nucleus and changing cytoplasmic environment.