

Interrogating the Role of PRDM14 in Human Germ Cell Development and Germ Cell Tumorigenesis

Joanna Gell, MD

Fellow, Pediatric Hematology/Oncology

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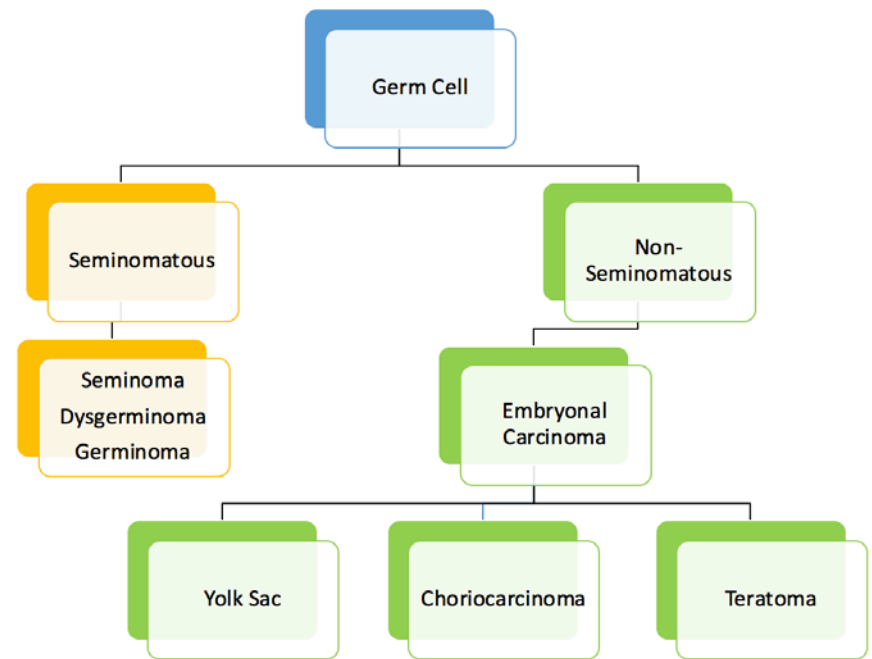
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School of Medicine

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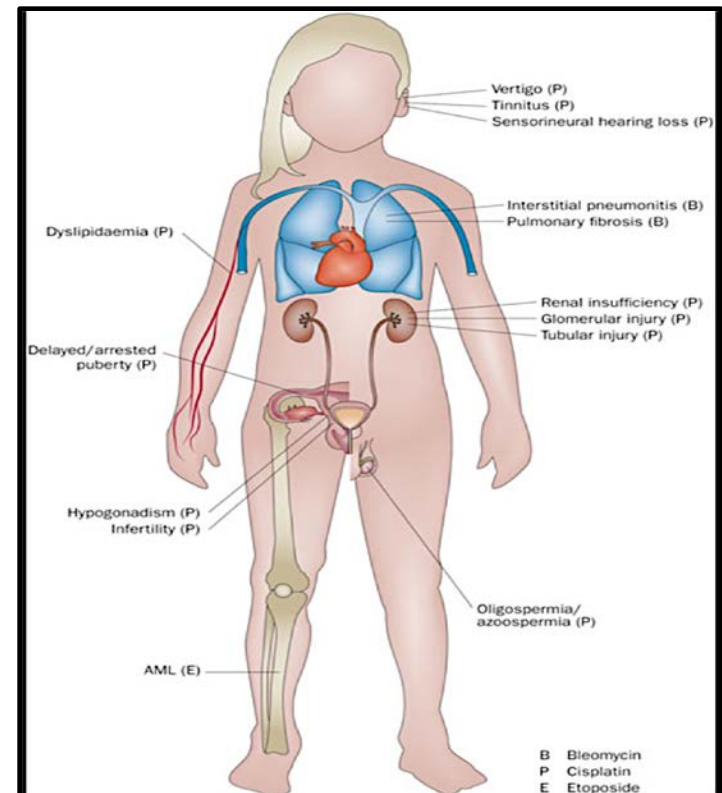
Germ Cell Tumors

- Germ cell tumors (GCTs) encompass a heterogeneous group of tumors
- GCTs occur in the gonads and extragonadal locations
 - Extragonadal are primarily along the midline
 - Intracranial (pineal and suprasellar)
 - Mediastinum
 - Sacrococcygeal

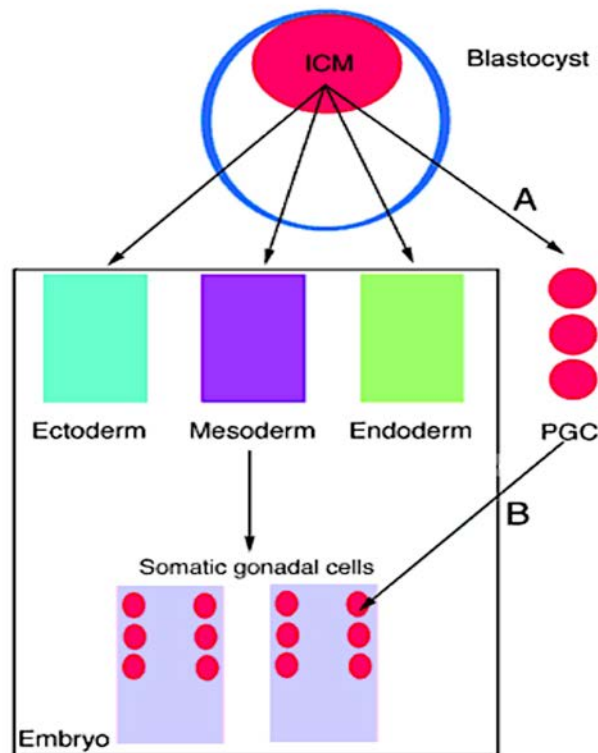


Germ Cell Tumor Mortality/Morbidity

- Overall there is a 5 year survival rate of 85-90%
 - Survival varies by:
 - Staging at diagnosis
 - Response to cisplatin therapy
- The standard chemotherapy regimen consists of a cisplatin backbone
 - Bleomycin
 - Etoposide
 - P Cisplatin



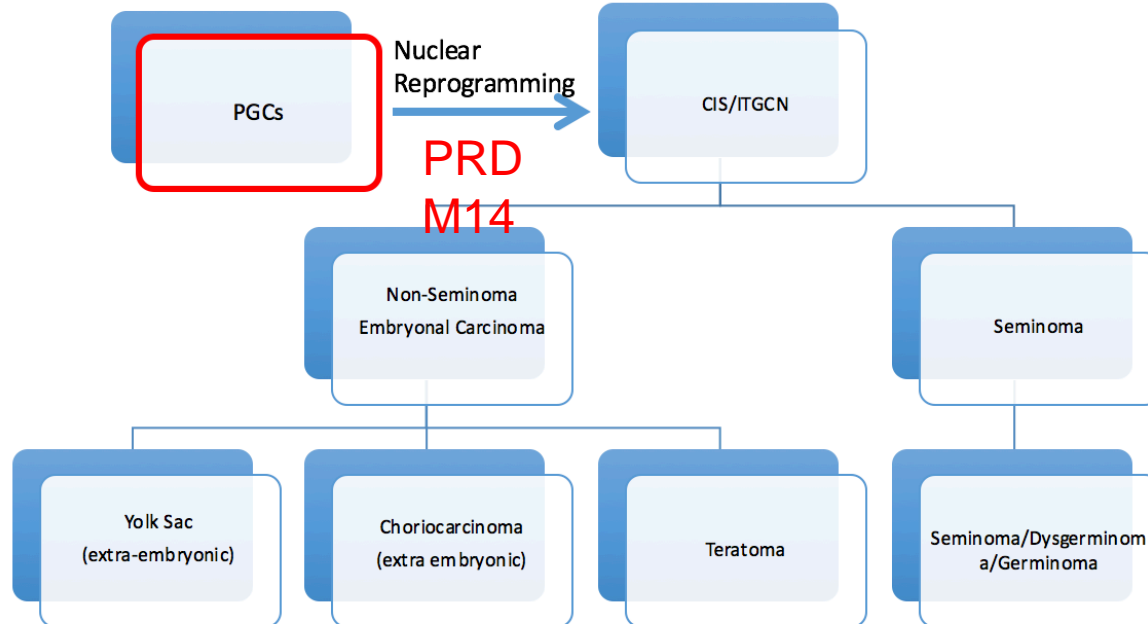
The Primordial Germ Cell is the Cell of Origin for Germ Cell Tumors



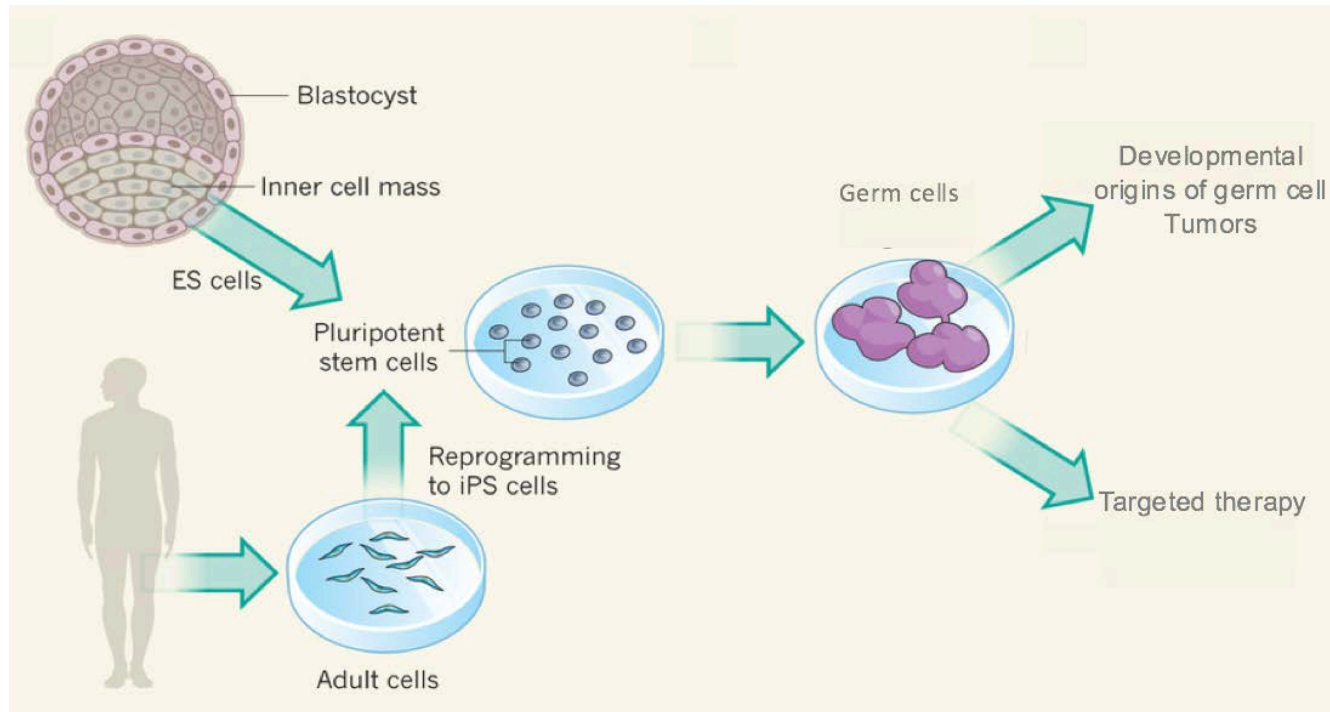
- PGCs arise from a subset of cells in the inner cell mass that are committed to the germline
- PGCs share many properties that are similar to pluripotent embryonic stem cells (ESC)
- In vitro, PGCs have the ability to be reprogrammed into pluripotent stem cell
- **One key player identified in reprogramming is Prdm14**

Hypothesis

- Prdm14 functions to promote germline reprogramming from a committed germ cell with one fate, into a stem-cell-like cell with multiple fates, including GCT formation.

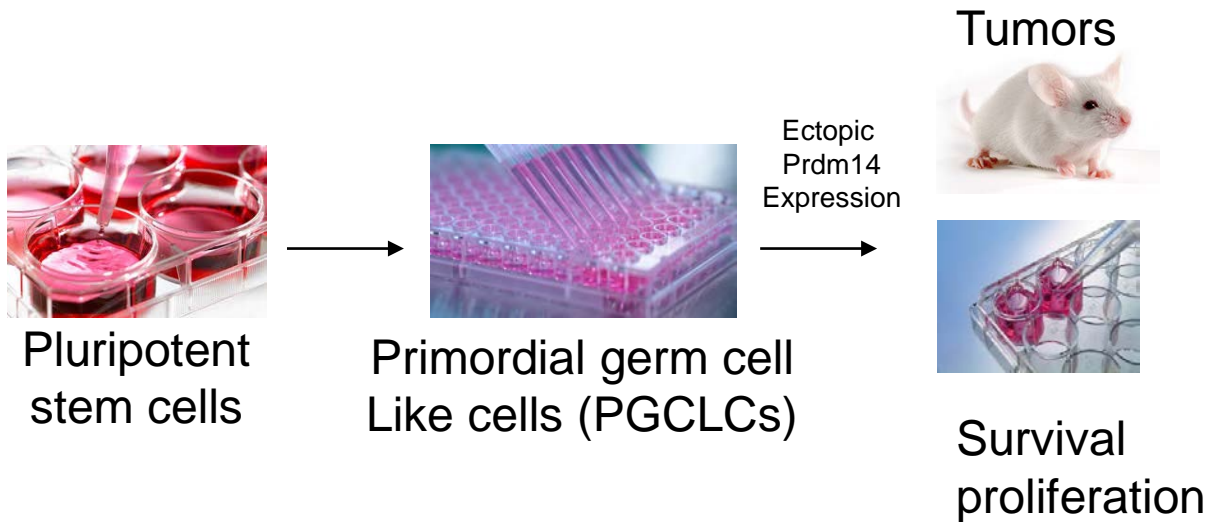


Human Stem Cell Model



Modified from Brustle et al., 2013

Next Generation Platform for Human Germ Cell Tumor Models



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