Notes on sperm cryopreservation and regeneration.
12-1-11

A new protocol was developed by The Jackson Laboratory in 2008 to cryopreserve the sperm of mice[1]. This protocol involved the use of monothioglycerol and cryo-straws (instead of cryo-vials). These alterations greatly increased the viability of the frozen sperm when thawed (as judged by motility and by fertilization rates). Sperm samples frozen prior to 2008 and/or samples frozen using older protocols have much poorer viability, especially if the sperm was harvested from an inbred strain of mice. Such samples often fail when used in IVF procedures[2].

The UMMS Transgenic Animal Modeling Core (TAMC) has successfully regenerated lines of mice (inbred strains) for UMMS Investigators using frozen sperm provided to us by third parties ONLY when that sperm was frozen using the newer protocol. The TAMC has also cryopreserved sperm using the new protocol for UMMS Investigators that proved successful in the subsequent regeneration of mice by third parties.

UMMS Investigators wishing to regenerate mice using cryopreserved sperm frozen by third parties should request a copy of the protocol that was used to freeze the sperm prior to purchasing the sample. The TAMC is happy to review the protocol and make suggestions to the UMMS Investigator regarding the likelihood of success.

1. Ostermeier, GC et al. (2008) PLOS-One 3(7): e2792.
2. These issues are not relevant to IVF using freshly harvested sperm.