

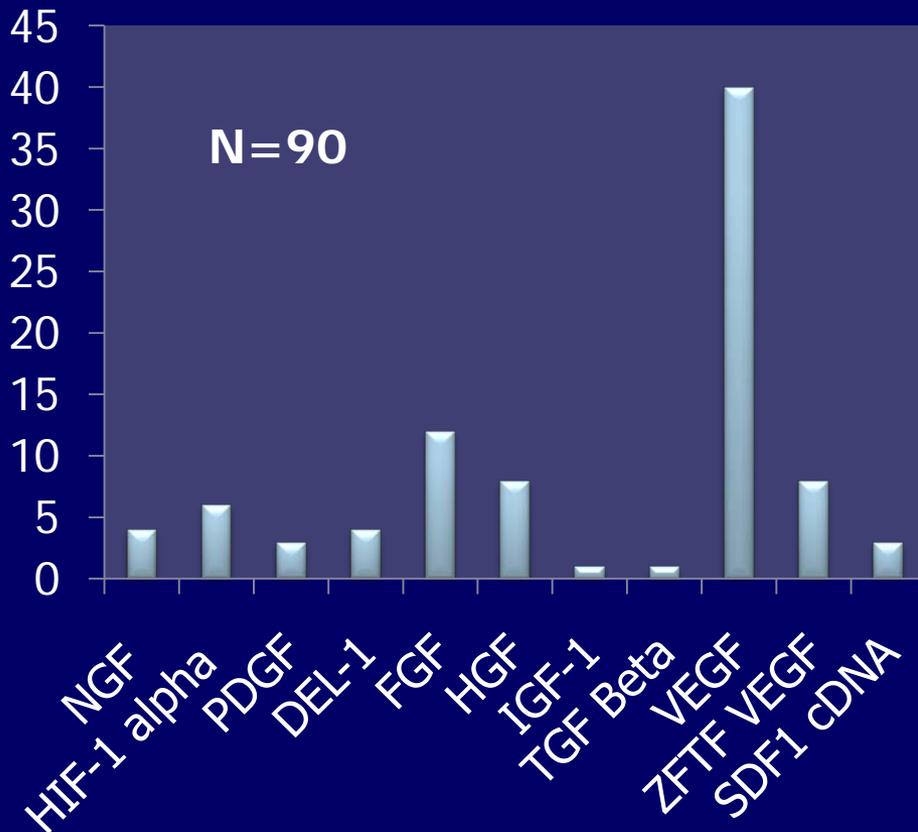
***Data on Growth Factor
Protocols Registered with
NIH/OBA***

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March 8, 2011

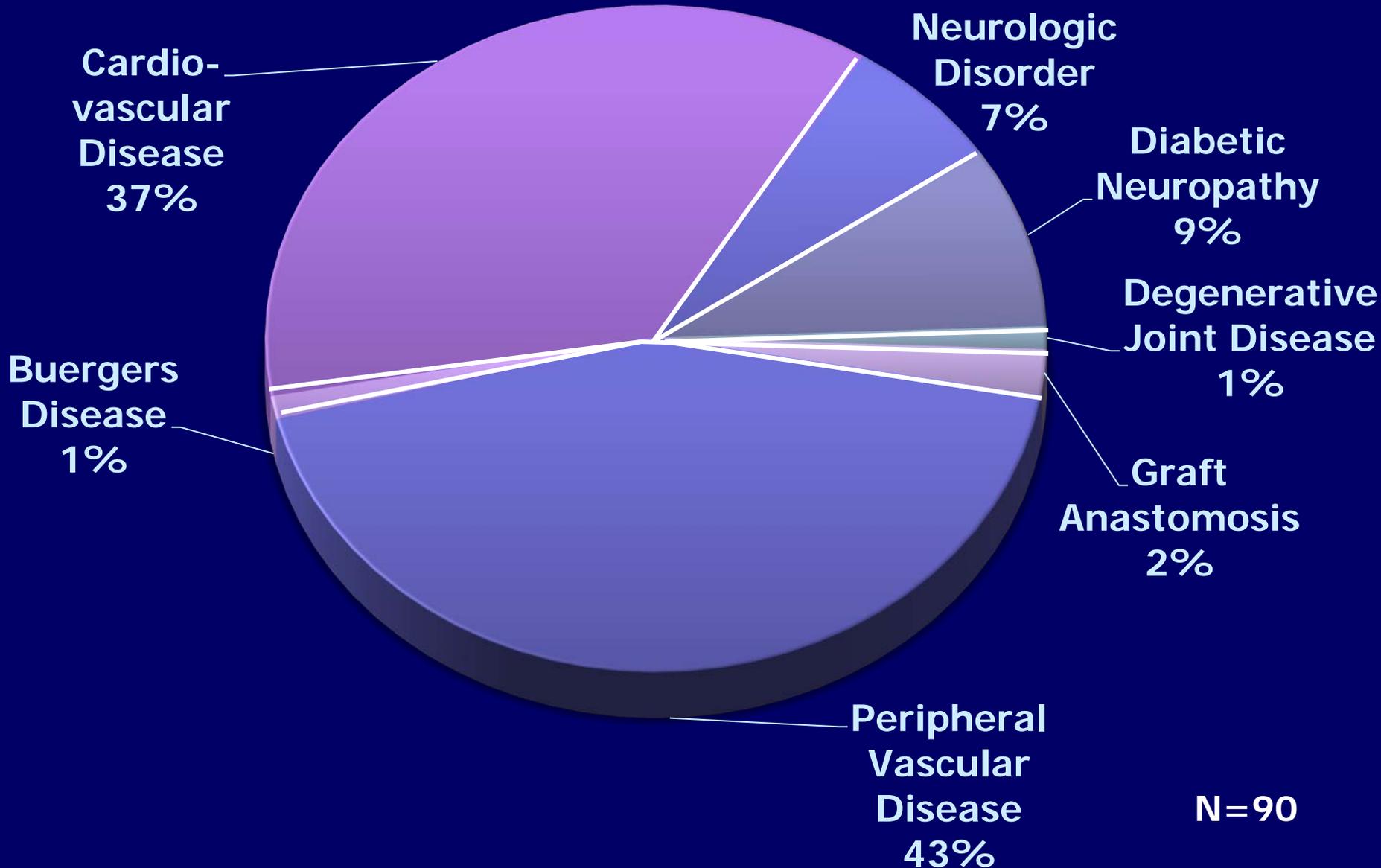


Growth Factor Transgenes

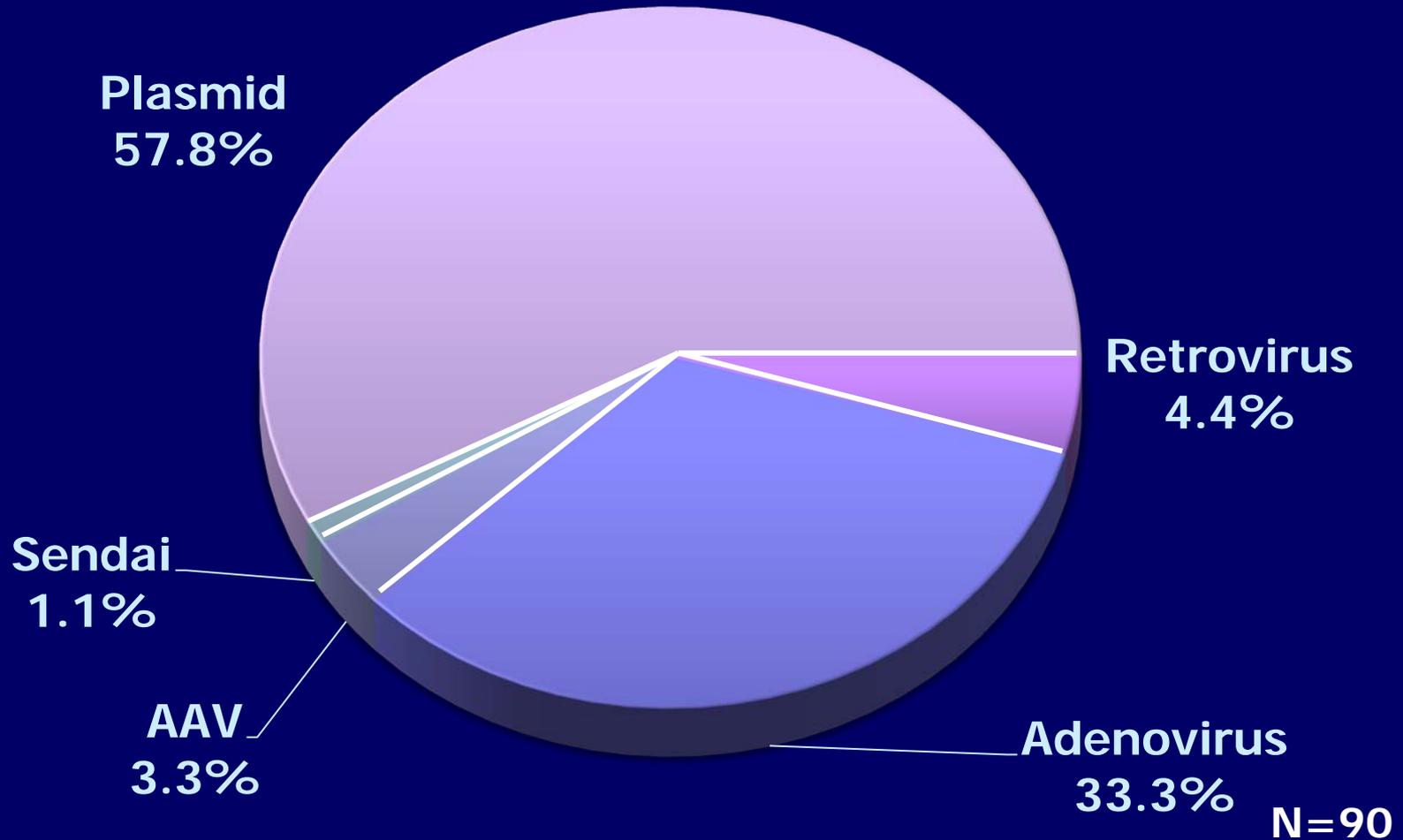


NGF	Nerve Growth Factor
HIF-1 α	Hypoxia Inducible Factor
PDGF	Platelet Derived GF
DEL-1	Developmentally Regulated Endothelial Locus-1
FGF	Fibroblast GF
HGF	Hepatocyte GF
IGF-1	Insulin GF
TGF- β	Transforming GF
VEGF	Vascular Endothelial GF
ZFTF VEGF	Zinc Finger Transcription Factor
SDF1 cDNA	Stromal cell-derived Factor

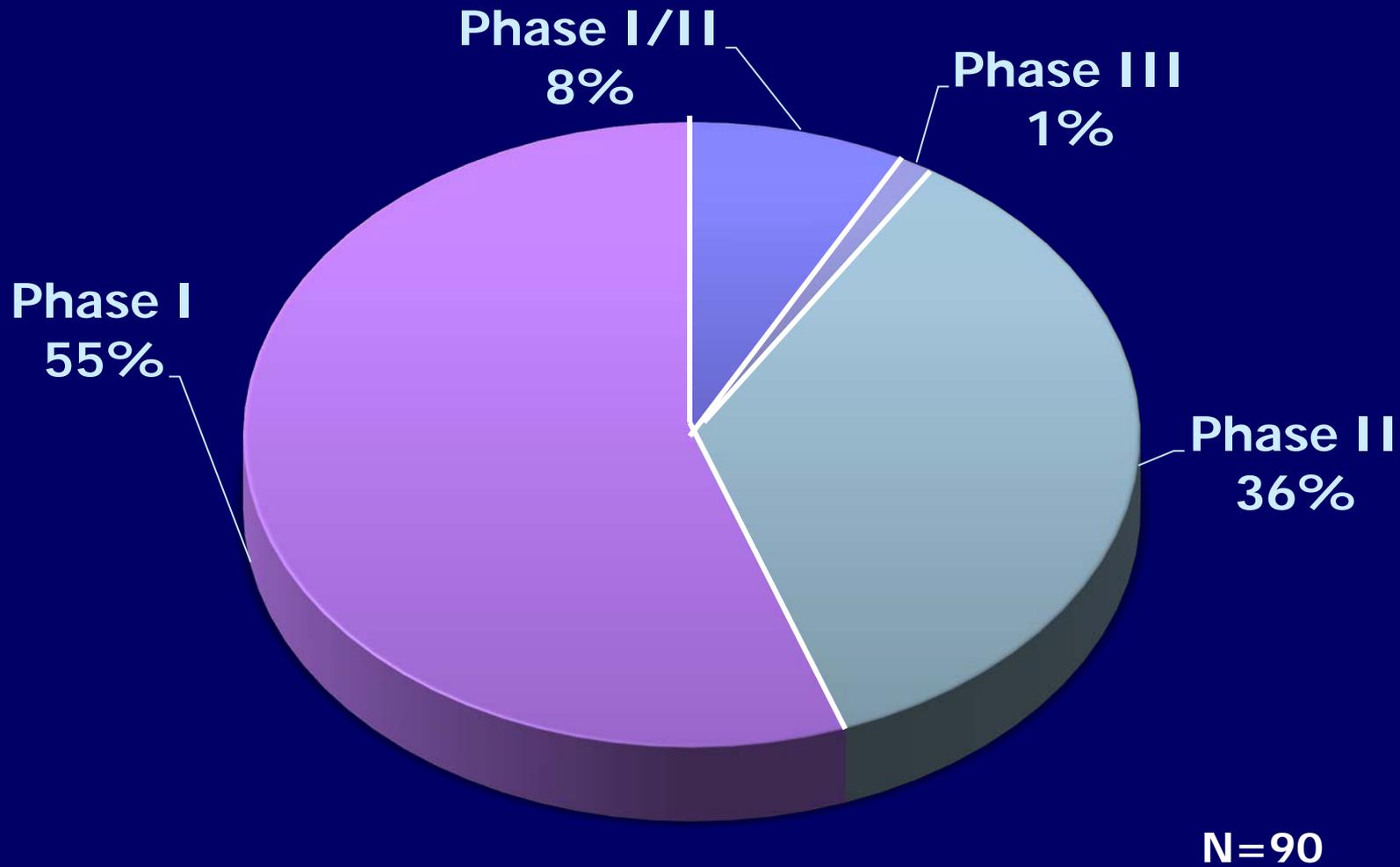
Trials By Target Disease



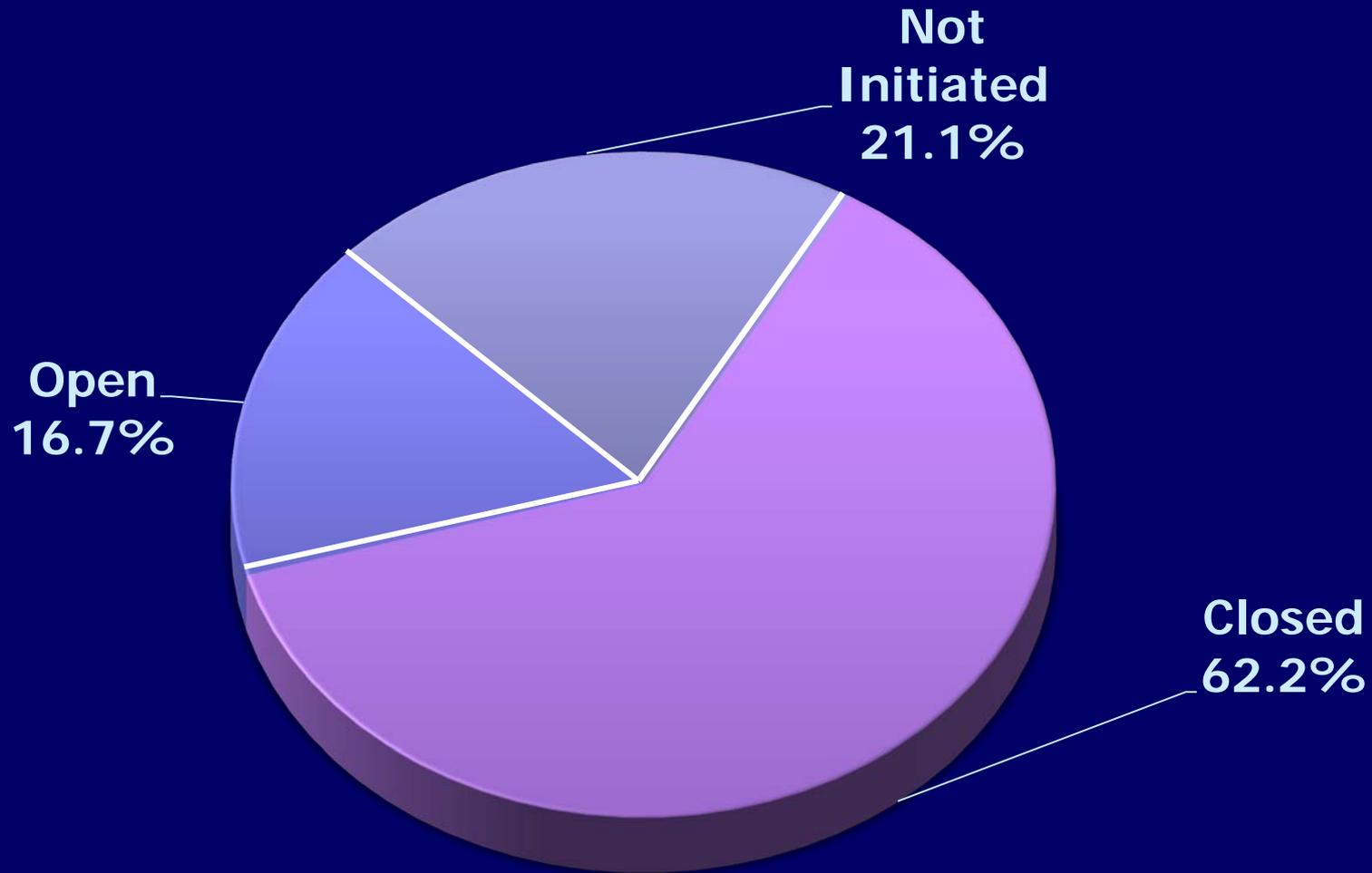
Trials By Delivery System



Trials by Phase



STATUS



N=90

Questions for Consideration

- **What can be learned regarding the use of growth factors from these two trials:**
 - Is the failure to see clinical effect related to failure of transgene expression and angiogenesis or is there angiogenesis without clinical effect ?
 - Were the animal models predictive of the clinical effect?
 - Could vector choice have been a factor?
 - As angiogenesis is a key physiologic process in tumor growth, was there any difference in malignancy rates between those who received active agent and placebo?
 - Were there unanticipated problems?