

P044 Diversity of plasmids from deep-sea hyperthermophiles
**ERAUSO Gaël¹², GONNET Mathieu¹, LE ROMANCER
Marc¹, PRIEUR Daniel¹.**

*¹Laboratoire de Microbiologie des Environnements
Extrêmes (UMR 6197), Institut Universitaire Européen de la
Mer, 29280 Plouzané France*

*²Laboratoire de Microbiologie (UMR 180), IRD-ESIL, case
925, 163 av. de Luminy, 13288 Marseille.*

Although recent study showed that plasmids are frequent in Thermococcales till now, only 3 small (3.5 kb) plasmids were fully characterized. These plasmids replicating by a rolling-circle mechanism were used for the construction a cloning vector. To gain more insight the biology of these elements, twelve novel plasmids (9 to 35 kb) from deep-sea vent isolates were recently sequenced. Most of the ORFs do not have function-known homologues in databases; many are shared by several plasmids. High degree of conservation and large distribution of these novel gene families strongly suggest essential functions. Several of these plasmides, have their genome highly homologous to integrated elements identified in the chromosome of euryarchaea showing their importance in gene flows and lateral gene transfer in archaea. We could demonstrate the mechanism of integration of such a plasmid in its host chromosome. Among assignable ORFs function, most were related to DNA maintenance (Replication Repairation Recombination) such as helicases, MCM, cdc6, methyltransferases, endonucleases, resolvase, integrase. Putative transporters and proteases identified in the plasmids genomes could also advantage the host organism for utilisation of low concentrated nutrients in oligotrophic environment.