

PYRANOSYL-RNA

Albert Eschenmoser

Laboratory of Organic Chemistry, Federal Institute of
Technology (ETH), Universitätstrasse 16, CH-8092 Zürich,
Switzerland, FAX (01) 632 1043

p-RNA is the oligonucleotide system isomeric to RNA containing ribopyranosyl- instead of ribofuranosyl-units and phosphodiester bridges between positions 4' → 2' instead of 5' → 3'. The comprehensive study of the chemical properties of p-RNA is part of a systematic experimental study towards a chemical rationalization of Nature's evolutionary choice of RNA and DNA as genetic systems.

Experiments carried out so far show that purine-pyrimidine base pairing in p-RNA is not only stronger than in natural RNA, but also more selective with respect to pairing modes. This selectivity is one of the reasons for p-RNA's exceptional potential to replicate base-sequences non-enzymically. The lecture will summarize what we know experimentally about template controlled replication of p-RNA base-sequences.

Pitsch, S., Wendeborn, S., Jaun, B., Eschenmoser, A.: 1993,
Helv. Chim. Acta 76, 2161.

Pitsch, S., Krishnamurthy, R., Bolli, M., Wendeborn, S.,
Holzner, A., Minton, M., Lesueur, C., Schlönvogt, I.,
Jaun, B., Eschenmoser, A.: 1995, *Helv. Chim. Acta* 78,
1621.

Krishnamurthy, R., Pitsch, S., Minton, M., Miculka, C.,
Windhab, N., Eschenmoser, A.: 1996, *Angew. Chemie*,
submitted.