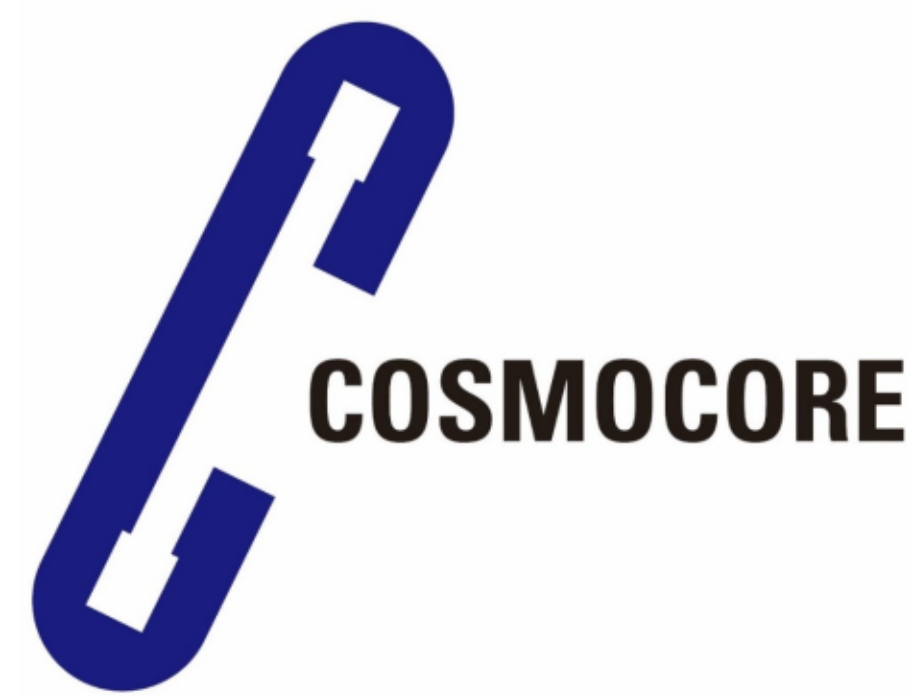


HPLC columns with unique selectivity for nucleic acids

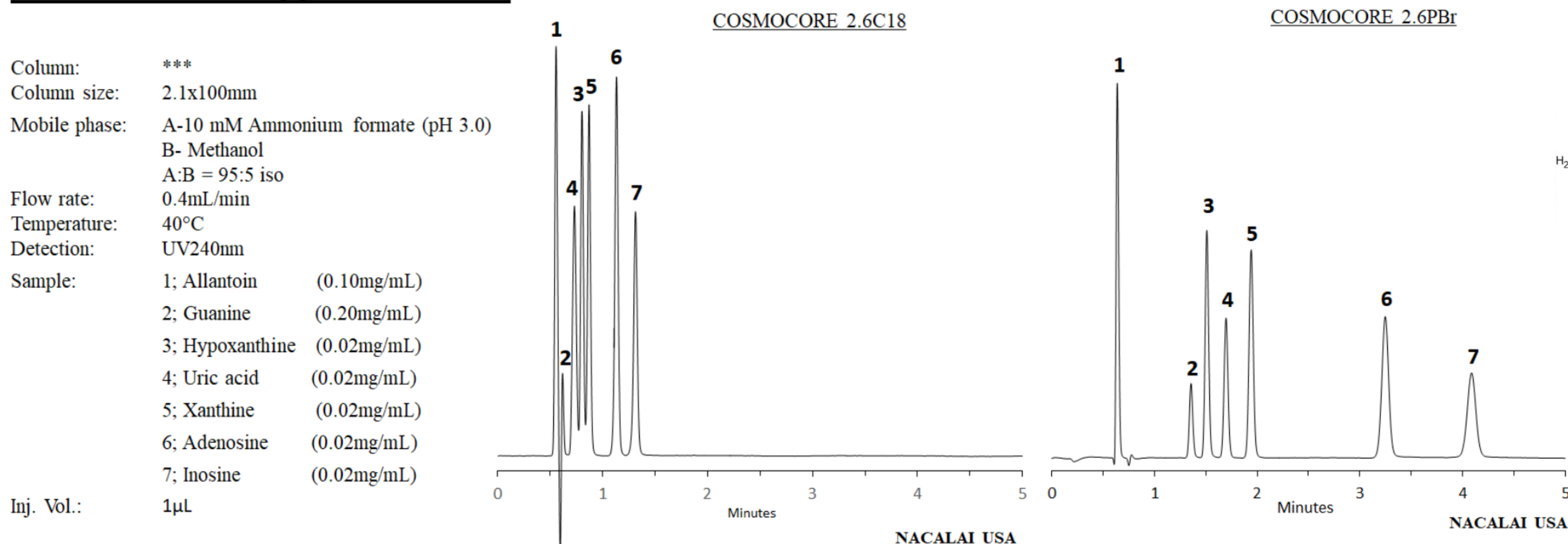
Alex Levine, Ph.D., Nacalai USA, Inc., San Diego, CA, USA
 Toshi Ono, Nacalai USA, Inc., San Diego, CA, USA
 Tsunehisa Hirose, Nacalai Tesque, Inc., Kyoto, Japan
 Daniel Keck, Nacalai Tesque, Inc., Kyoto, Japan



Abstract: Nucleic acids pose a challenge to HPLC analysis due to their high polarity and complexity. COSMOCORE brand HPLC columns with unique stationary phase chemistries allow for improved selectivity for nucleic acids and nucleic acid metabolites as compared to traditional octadecyl (C18) columns. COSMOCORE Cholester, functionalized with a cholesterol-based stationary phase, allowed for base-line resolution of single base changes in single stranded DNA oligomers. COSMOCORE PBr, a phenyl bromide column, exhibited significant retention of polar compounds such as nucleic acid metabolites under simple reverse-phase conditions. Transferring methods to these column chemistries will allow for enhanced purification and identification for nucleic acid applications.

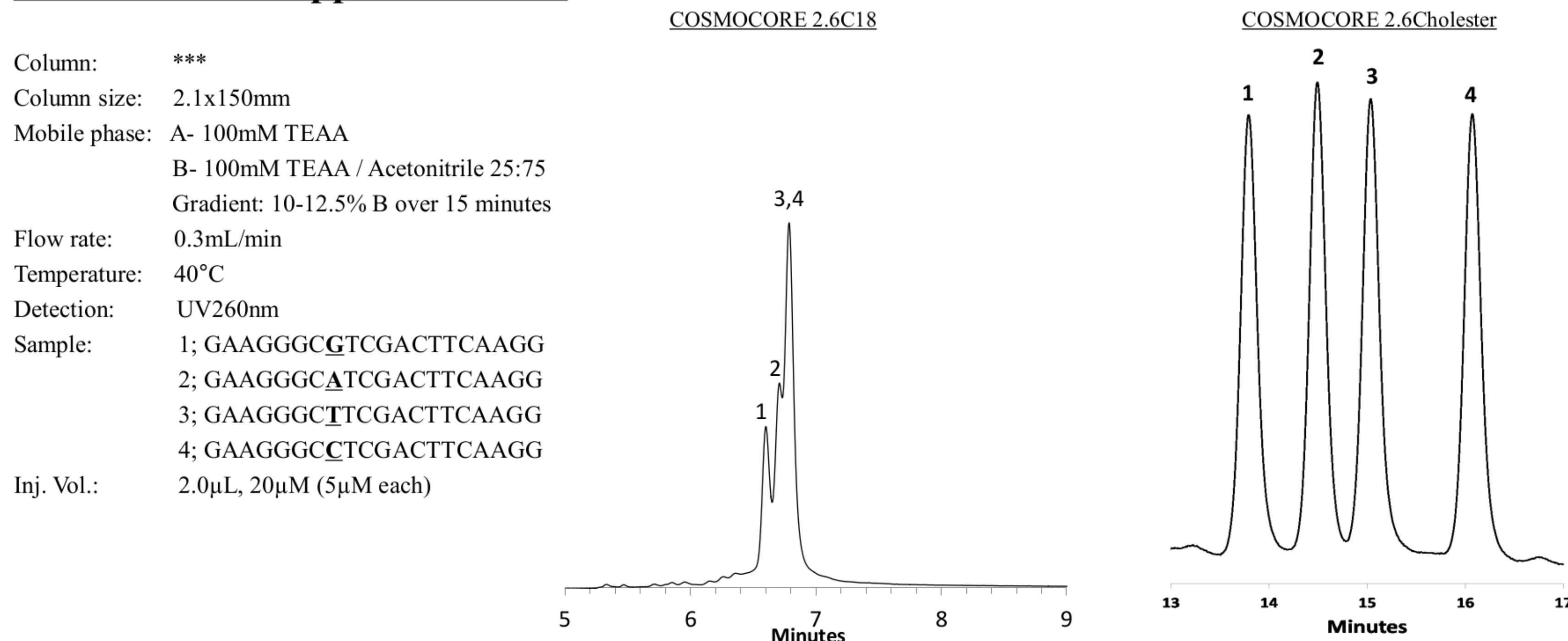
Nucleic acid metabolite analysis

COSMOCORE Application Data



Single stranded DNA analysis

COSMOCORE Application Data



Conclusions:

- C18 columns suffered from poor retention of polar analytes, and lack specificity toward DNA sequence changes.
- PBr column demonstrated significantly improved retention for highly polar analytes compared to C18 phase.
- Cholester column showed greater sensitivity toward single base changes in ssDNA oligomers compared to C18 phase.

