

# Justification Analysis to Management for Purchase of **MicroFlow NMR**

## + Increase Revenues

**BETTER ANSWERS.** High Sensitivity (spectra from only one microgram of sample). Faster spectra acquisition (up to 100X faster than 5mm probes).

**INCREASE FACILITY CAPACITY.** Increase utilization of existing magnet(s). Bring in revenue from other researchers wanting magnet time.

**OBTAIN IMPROVED SPECTRAL QUALITY.** Find poor or excellent leads faster, waste less time.

## - Decrease Expenses

**CREATING BIOSAMPLES?** Reduce sample preparation from 1 month to 1 week, use smaller quantities of reagents/lab supplies and reduce labor. Technician payroll (w/overhead) at \$90,000/year = labor savings of about \$34000.00/year. (Assume six studies/year.) Reagent costs (DMSO = \$1400/Liter) (e.g., peptide synthesis, isotopically labelled) could be scaled back by \$9,000/study assuming solvent use reduced by 90%.

**GOT LIMITED SAMPLES?** Mouse urine, spinal fluid? It is no longer necessary to use hard-to-acquire, large quantities for analysis. Save on collection costs by using micrograms of sample. And save on animal costs – lab quality animals are not sacrificed to obtain NMR data. (Multiple animals in studies brings additional variables – you get clearer data sets.)

**GOT TUBES?** *Eliminate* tube costs. At approximately \$7.00/tube and using approximately 30 tubes/day (220 days/year), cost savings could be approximately \$46K/year.

**USING CONVENTIONAL-SCALE CHROMATOGRAPHY?** By switching to capillary-scale you can reduce deuterated solvent (D2O) consumption/costs. With conventional LC-NMR (1mL/min) consuming up to 100 liters/year (\$385.00/liter) in constant use, Protasis CapLC-NMR (1uL/min) can reduce costs from approximately \$40K/yr, to an affordable \$4K/yr. Savings are even larger with acetonitrile and DMSO.

**REDUCE HAZARDOUS MATERIAL RECYCLING COSTS.** \$500/month or more in typical labs.

<b>\$ Return on Investment Calculations (simplified)</b> (Payback Period = Original Investment/Annual Cash Flow)	
✓ <b>Creating Biosamples</b>	⇒ Payback = \$60000 / \$88,000 = ~ 8 months (conservative)
✓ <b>Limited Samples</b>	⇒ Payback = results unattainable by other means
✓ <b>Eliminate Tubes</b>	⇒ Payback = \$60000 / \$46000 = ~ 15 months
✓ <b>Solvent Savings</b>	⇒ Payback Period = \$60000 / \$36000 = ~ 20 month payback

Savings \$/ yr	Payback (months)
\$88,000+	8
Large (Enabling)	Immediate
\$46,000	15
\$36,000 (Enabling)	20