

portfolio selections



Tim J. S.

Graphic Designer

Layout & content strategy

Design should be clear, connected, and intentional—grounded
in a minimalist approach that lets the message lead.

Infographic design

Client-branded, vector-strong

Designed to explain diffuse reflectance infrared spectroscopy, this infographic was fully aligned with the client branding. Key visuals were redrawn or created as vector graphics to preserve detail and quality in print and digital formats, with a clear visual hierarchy to enhance flow.

VIEW THE
INFOGRAPHIC ONLINE



Adobe Illustrator

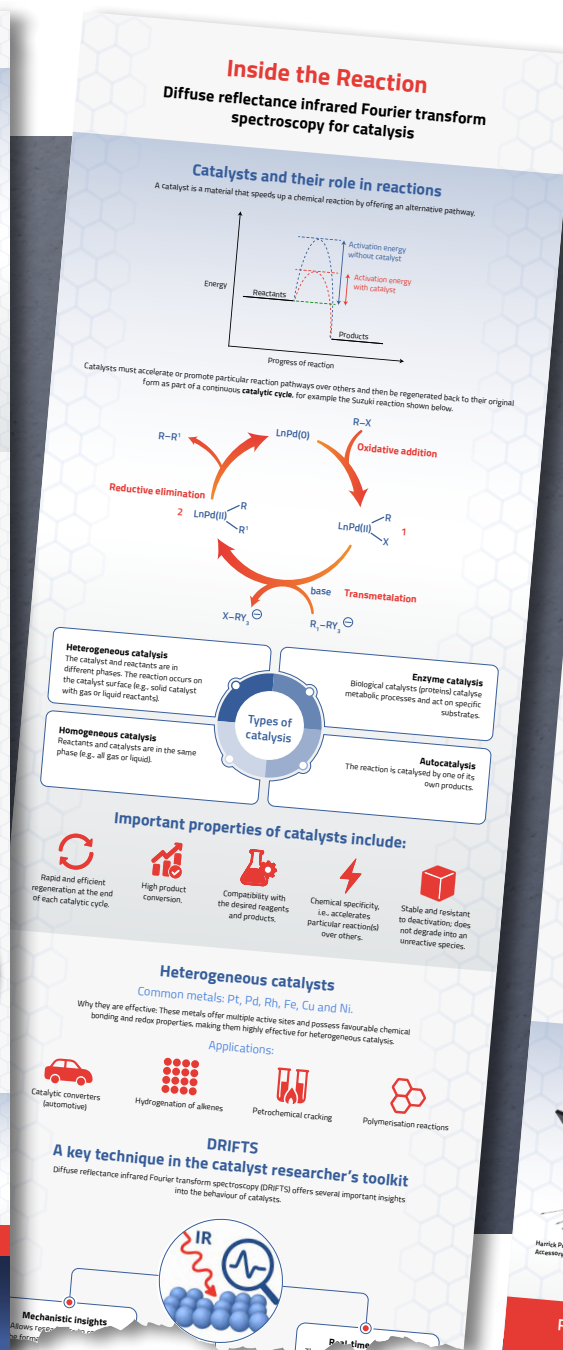
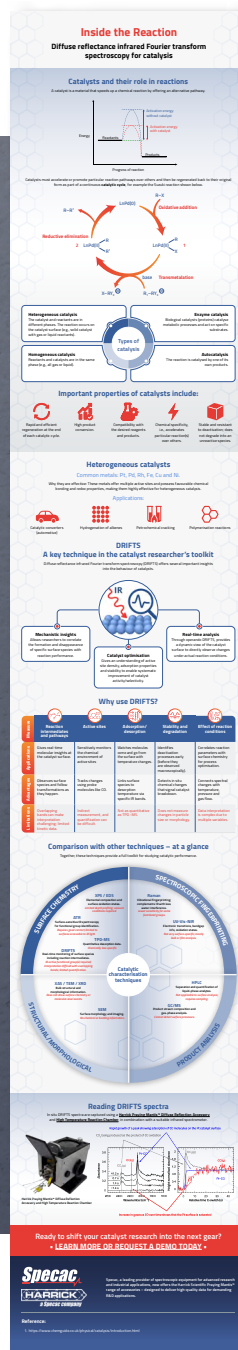


Adobe InDesign



Adobe Photoshop

Client: Specac
Industry: Spectroscopy accessories & sample preparation solutions



Franchise marketing toolkit

Brand-consistent assets

A suite of marketing pieces created for Coates Hearing Clinic, each tailored to its format—from postcard to trade show flyer to digital ad—while maintaining consistent branding. Designs reflect a cohesive strategy that builds trust, engages prospects, and supports franchise growth.

- Ai** Adobe Illustrator
- Cs** Content strategy
- Id** Adobe InDesign
- Ps** Adobe Photoshop

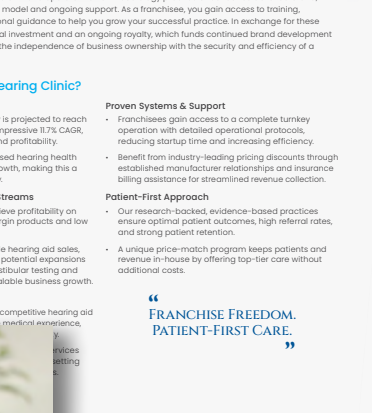
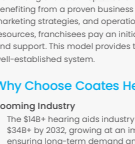
Client: Coates Hearing Clinic
Industry: Healthcare



COATES HEARING CLINIC FRANCHISE OPPORTUNITY

Invest in a Better Quality of Life for You and Your Patients

VIEW ONLINE



COATES HEARING CLINIC FRANCHISE OPPORTUNITY

Invest in a Better Quality of Life for You and Your Patients

VIEW ONLINE



COATES HEARING CLINIC FRANCHISE OPPORTUNITY

The Growing Opportunity in Audiology

VIEW ONLINE



COATES HEARING CLINIC FRANCHISE OPPORTUNITY

Invest in a Better Quality of Life for You and Your Patients

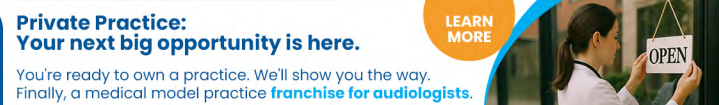

VIEW ONLINE



COATES HEARING CLINIC FRANCHISE OPPORTUNITY

Invest in a Better Quality of Life for You and Your Patients

VIEW ONLINE



COATES HEARING CLINIC FRANCHISE OPPORTUNITY

Invest in a Better Quality of Life for You and Your Patients

VIEW ONLINE

Digital assets that stand out

Original, on-brand visuals

Crafted for clarity, recall, and brand cohesion, these digital assets support ongoing communication across media. Each design—whether a social post or email signature—uses strategic layout, color, and typography to ensure it feels deliberate, not templated.



Adobe Illustrator



Adobe Photoshop

Client: Metrohm, Thermo Fisher Scientific, and Avian Biosolutions
Industry: Scientific instrumentation and biotechnology

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Anywhere.**

TacticID-1064 ST
is always ready.

From field to lab, get results you can trust—
with ergonomic design, smart attachments,
and zero downtime.

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 **Metrohm**

**Any sample.
Anywhere.**

TacticID-1064 ST is always ready.

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Proven Niton reliability
and expertise, direct to you.

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BIOTECH MANUFACTURERS**



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DIAGNOSTICS



THERAPEUTICS



AGRIBIO



ACADEMIA &
GOVERNMENT

JOIN OUR NETWORK OF INNOVATIVE SUPPLIERS.
LET'S GROW YOUR REACH AND REVENUE—TOGETHER.

Responsive email design

Cross-client compatible

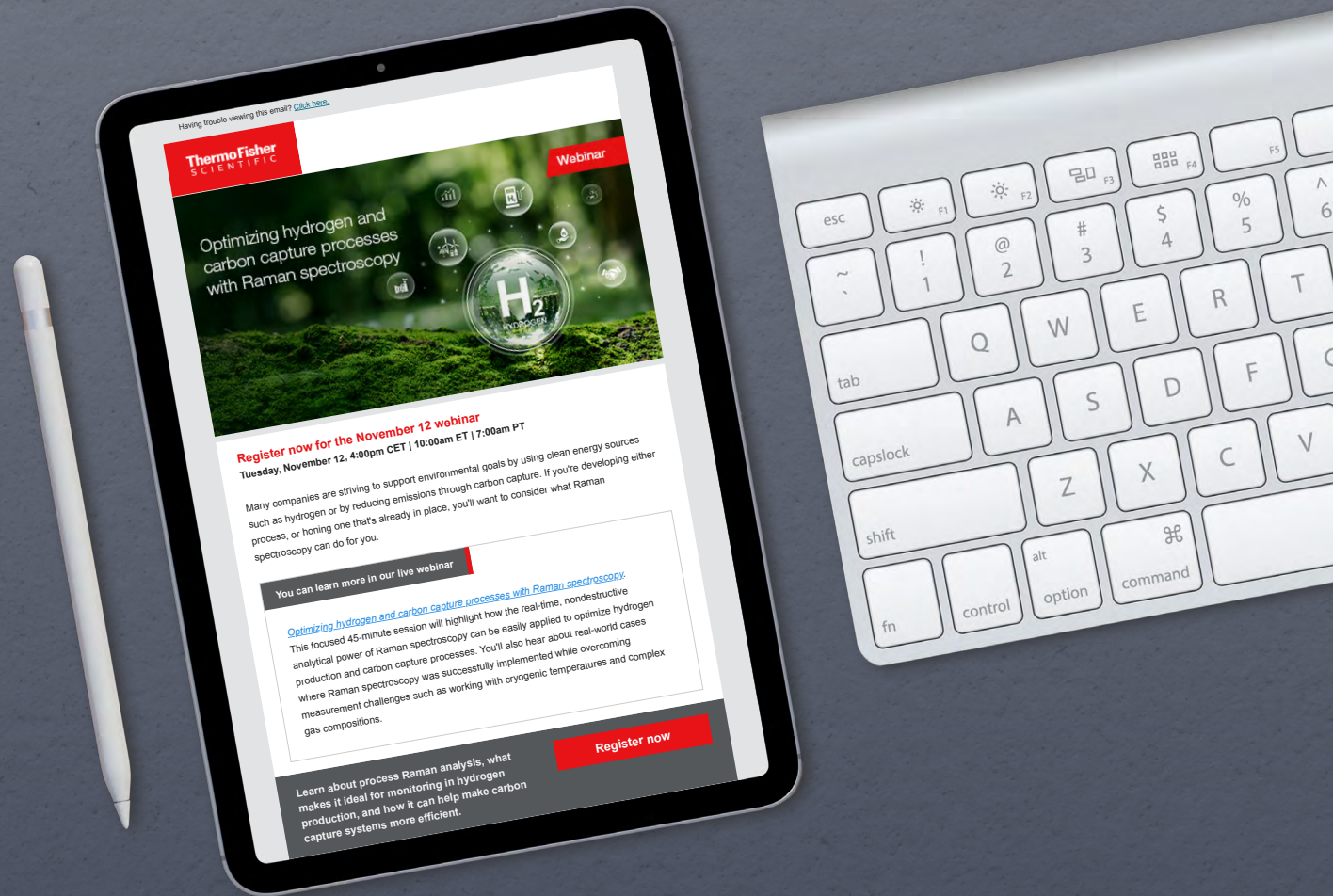
A responsive email design built with attention to aesthetics and reliability. The hero image resonates immediately with a scientific audience, reinforcing the message before reading. The HTML maintains structural integrity across email clients, using fully qualified URLs for hosted images. When creating HTML emails, I ensure that special characters—such as trademarks or international text—are encoded properly for consistent rendering.



Adobe Dreamweaver



Adobe Photoshop



Client: Thermo Fisher Scientific
Industry: Scientific instrumentation

Application layouts

Smart, structured documents

Designed and typeset this white paper to support concise, professional communication of complex scientific content. With no brand templates available, I created a custom layout and typography system that reflects the client's expertise and ensures clarity. I also design application notes and similar technical documents focused on structure, readability, and accuracy to support credibility and comprehension.

**VIEW THE
WHITE PAPER ONLINE**



Adobe InDesign



Adobe Photoshop

Client: Oligo Factory
Industry: Biotechnology



WHITE PAPER

ACHIEVING LOW ENDOTOXIN LEVELS IN OLIGONUCLEOTIDES FOR NUCLEIC-ACID THERAPEUTICS



Oligonucleotide drugs are a broad spectrum class of therapeutics targeting a single expression of disease from genetic disorders to infectious diseases. The first drugs are nucleoside analogs, chemically synthesized analogs of DNA or RNA designed to require gene expression. From a manufacturing perspective, oligonucleotide drugs are categorized into two molecular drugs but have the advantage of being able to be rapidly assembled using the primary technology of design-build-test. In addition to compounds, additional oligonucleotide drugs are unique to produce compounds to biological and chemical synthesis that are not possible with destructive mechanisms of action outside their target biological processes, especially in small molecule and protein drugs, capable of small molecule and protein drugs, respectively.

THE CURRENT LANDSCAPE OF OXENUCLEOTIDE THERAPEUTICS

The majority of nucleic acid drugs in development are for the treatment of infectious diseases, including HIV, hepatitis B virus, hepatitis C virus, and malaria. The most common strategy for these drugs is to target the viral RNA polymerase using RNA analogs such as nucleoside analogs, nucleotide analogs, and nucleoside phosphonates. Other strategies include targeting the viral RNA genome, the viral RNA-protein complex, and the viral RNA-protein complex. The most common strategy for these drugs is to target the viral RNA polymerase using RNA analogs such as nucleoside analogs, nucleotide analogs, and nucleoside phosphonates. Other strategies include targeting the viral RNA genome, the viral RNA-protein complex, and the viral RNA-protein complex.

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artificial nucleic acids [30a,b] such as locked nucleic acids [30a], constrained 2'-O-methyl [30b], 2'-O-*N*-ethylene-bridged nucleic acids [30a], and triazolo DNA [30a] are also gaining popularity as they enhance both nucleic-acid stability and binding affinity.

Additionally, inactivated nucleobases (often in the form of peptide nucleic acids [31a]) and phosphoramidate morpholino oligomers (PMOs) are also being increasingly used, owing to their superior binding affinity and specificity, and the neutral charge of PMOs and PMs enables easy cationic conjugation to nucleotides to enhance cell delivery and uptake, such as cell-penetrating peptides (CPPs), *N*-acetylglucosamine (GlcNAc), cholesterol and antibodies, *etc.*

To date, over 16 oligonucleotide drugs have been approved by the US Food and Drug Administration (FDA), European Medical Agency (EMA), and the Japan Pharmaceutical and Medical Device Agency (PMDA),¹ as clinical development progresses, scientists are constantly advancing and innovating new classes of oligonucleotides, as well as improving the existing

Furthermore, scaling up the manufacturing process from small-scale synthesis for pre-clinical research to the larger quantities required for clinical trials and commercial use is a major step in therapeutic oligonucleotide manufacturing. This often poses technical, logistical, and economic challenges. The quality control [QC] for scale-up can be very demanding due to the inherent complexity of the synthesis process and the possibility of numerous structurally similar impurities such as diastereomers, shortmers, and longmers.¹

in molecular biology for decades, with applications in basic research, diagnostics, and therapeutics of which require high-quality, compact, and pure reagents. The synthesis happens on a solid support in a stepwise process of adding nucleotide residues to build the desired sequence. After synthesis, oligonucleotides are cleaved from the solid support and purified, typically using reverse phase or ion

throughout these stages, controlling microbial contamination and endotoxin levels is critical, especially during downstream processing where the risk of bacterial contamination increases. The early production steps, however, involve processes that use solvents, and hence the harsh chemical environment make them less prone to microbial contamination.

For therapeutic applications, production of oligonucleotides must comply with GMP standards to ensure the quality, safety, and efficacy of the products. Guidelines must be followed for efficient removal of impurities, recovery of oligonucleotides, and scalability, with rigorous quality control in place.

ENDOTOXIN LEVELS: THE IMPACT ON THERAPEUTIC EFFICACY OF OXIGENOLISABLE DRUGS
Endotoxins are lipopolysaccharides (LPS) that are present in the outer membrane of gram-negative bacteria, such as *Escherichia coli*, *Proteus*, *Pseudomonas*, *Enterobacter*, and *Klebsiella*. They pose a significant safety concern in pharmaceuticals, as they can trigger a severe inflammatory response, leading to sepsis and other complications. Therefore, rigorous testing and control measures are essential to ensure the safety of these drugs.

The production process of oligonucleotides can be divided into two main stages: upstream and downstream procedures. Upstream procedures include solid-phase synthesis, cleavage, and deprotection, while downstream procedures include purification, concentration, and formulation. For oligo-

contamination in water, solvents, reagents, and equipment, even if the bacteria are killed during the sterilization process, endotoxins are released when bacterial cells lyse. Therefore, stringent quality control (QC) is imperative to prevent endotoxin contamination in drugs, particularly in parenteral drugs like oligonucleotides, which are administered in various

TPA, post-synthesis processes include concentration, desalting, and lyophilization to form a dry powder. Oligonucleotide concentration can be achieved by ultrafiltration/diafiltration [30,31]. For duplex formation each strand is concentrated and desalted before annealing; then concentrated again and lyophilized. The synthesis method, reagent quality, and purification are critical factors affecting oligonucleotide quality.

as per the United States Pharmacopeia [28], for parenterals the endotoxin limit equation is as follows:

$$\text{ENDOTOXIN LIMIT} = K/M$$

Where $K = 1/250$ (USP of body weight for use

the major reason remains the efficacy and cost of the resulting oligonucleotides. High-performance chromatography is crucial in purifying the desired oligonucleotides from contaminants, ensuring the yield and potency of the final *in vivo* product. Sphingolipids preserve the structure and activity of oligonucleotides making them more stable in the long term and to store and transport.⁹

$K = 0.2 \text{ kg/kg of body weight for intravenously administered products}$

$M = \text{The maximum recommended intravenous dose of drug per kg of body weight}$

THE INFLAMMATORY RESPONSE TO ENDOTOXINS
Endotoxin contamination can have serious negative effects on health. Endotoxin is a potent inflammatory agent that can cause fever, shaking chills, septic shock, renal insufficiency, and even exogenous pneumonia in

EFFECT OF ENDOTOXINS IN VARIOUS THERAPEUTIC AREAS

triggers inflammation by activating toll-like receptor 4 (TLR4) in conjunction with myeloid differentiation factor 2 [MD-2] and cluster of differentiation 14 [CD14]. Lipopolysaccharide binding protein (LBP) is a soluble plasma protein that facilitates the transfer of LPS to membrane-bound CD14, which in turn is required to transfer LPS to TLR4.

autophagy, cell cycle arrest, and microtubule activation, impacting nearly all body organs. This necessitates meticulous endotoxin testing and management during manufacturing, especially for oligonucleotide drugs delivered systemically, where improper removal of endotoxins could result in severe clinical conditions, particularly because these drugs are designed for

Activating of TLR4 results in the transcriptional activation of several inflammatory genes, including pro-inflammatory cytokines such as TNF- α , IL-6, and pro-IL-1. Intracellular IPS can activate murine caspase (caspase-4 or caspase-5 in humans), which cleaves and activates caspase-1, leading to the production of IL-1 β . Caspase-1 and caspase-5 can also activate gelsolin, resulting in cell death by pyroptosis.*

Cardiovascular and renal functions are notably susceptible to the adverse effects of endotoxins and have been associated with arteriosclerosis of the arterial walls.¹⁻³ Even low levels of endotoxins can cause liver damage, as hepatocytes are extremely sensitive to these substances. Additionally, there is a link between endotoxins and insulin resistance in adipose

Other receptors for endotoxin include MD2, TRAM2, the macrophage scavenger receptors, and the β_2 integrins (CD11b/CD18, CD11c/CD18, and CD11b/CD26). These pattern recognition receptors may function to clear LPS and bacteria expressing LPS from blood and tissues, but, in the process, also promote inflammation and LPS toxicity. Hence, high levels of endotoxin can cause a 'cytokine

issue* in the pulmonary system, endothelins may lead to decreased lung function, respiratory symptoms, and inflammation, emphasizing the need for rigorous endothelin level control in drugs aimed at respiratory disorders, including single-stranded phosphorothioate antisense oligonucleotides [see PS 230C] being developed as aerosols for pulmonary delivery."

etoremi, leading to multiple-organ damage, shock, acute kidney injury, liver dysfunction, and coagulation anomalies.¹² On the other hand, chronic low levels of endotoxin may promote low-grade inflammation or tolerance.¹³

With respect to neurology, presence of systemic endotoxins can increase the permeability of the blood-brain barrier [188] and affect the functioning of circumventricular organs, permitting the entry of plasma components and endotoxins into the brain, potentially causing neuroinflammation and neurodegeneration. The recruitment of leukocyte into the brain, and subsequent activation of microglia, is



known to contribute to synaptic and neuronal loss. Although low doses of endotoxin have minimal impact on BBB permeability and brain entry, studies suggest indirect pathways for inducing brain inflammation by peripheral endotoxins.¹ Hence, oligonucleotide drugs intended for the central nervous system (CNS) therapy, which are often administered intrathecally, require active or passive administration and crossing the BBB are



and treatment centers to provide hazardous waste.

[illegible]

REGULATORY LANDSCAPE

The regulatory landscape for algorithms is a complex one, with few laws designed specifically to regulate them. However, existing laws on data protection, knowledge and expertise in our biology and social control of AI.

It is also important to note the difference between different regulatory approaches. Systems, therapeutic, diagnostic, and/or predictive, are regulated differently. The European Union's General Data Protection Regulation (GDPR) is a good example of a general data protection law that regulates all data processing activities, regardless of whether they are for research or commercial purposes. The GDPR is a good example of a general data protection law that regulates all data processing activities, regardless of whether they are for research or commercial purposes.

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[illegible]

ABOUT OLIGO FACTORY
 Founded in 2008 by oligo-synthesis technology experts, Oligo Factory is a leader in manufacturing custom DNA and RNA oligonucleotides at medium- to large-scale quantities for the research, diagnostic, therapeutic and life science communities.

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 Rockville, MD 20850

 Phone: 202-275-1880
 Email: info@oligofactory.com



Event display design

Brand-aligned visuals

I designed these booth graphics for clarity, impact, and brand alignment. From bold pull-up banners to large-format displays, each piece balances corporate identity with relevance, ensuring visual strength, technical accuracy, and print readiness.



Adobe Illustrator



Adobe Photoshop



Tim_S

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2.018 Likes

Banner display [#event](#) [#tradeshow](#)



Tim_S

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3.026 Likes

Promo table [#thermofisher](#) [#event](#)

Client: Thermo Fisher Scientific and Cardiac Science
Industry: Scientific instrumentation and medical technology



thank you!

I appreciate you taking the time to review my recent work. I hope we can work together and bring clarity, strategy, and strong design to your next project. I look forward to your message on Upwork.

Tim J. S.

Graphic Designer
Layout & content strategy

Available on



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