A UNIQUE STRUCTURE: THE WATTS TOWERS
A unique structure...

**TRACRIUM® INJECTION**
*(atracurium besylate)*

*an intermediate-duration, nondepolarizing surgical muscle relaxant*

**Tracrium**

**Dual Pathways**

**Ester Hydrolysis**
*Catalyzed by nonspecific esterases*

**Hofmann Elimination**
*At normal body temperature (37°C) and pH (7.4)*
...with a unique mode of degradation

"The particular advantages of atracurium, apart from its virtual freedom from cardiovascular side-effects, stem from its novel, essentially chemical (non-enzymatic) degradation potential. Following i.v. injection, atracurium is rapidly degraded by Hofmann elimination and ester hydrolysis to fragments which are inactive as neuromuscular blocking agents."


Hofmann elimination

Benefits: because of its mode of degradation—Hofmann elimination—

• Tracrium is noncumulative
• Tracrium is not dependent on liver or kidneys for its elimination.

Ester hydrolysis

Benefit: because of its mode of degradation—Ester hydrolysis—

• Tracrium may be used in patients who have a history of low or abnormal pseudocholinesterase.

Tracrium is designed to undergo rapid and spontaneous biodegradation along two nonoxidative pathways, Hofmann elimination and ester hydrolysis. Hofmann elimination is a nonenzymatic chemical process which occurs at physiological pH and temperature. Ester hydrolysis, catalyzed by nonspecific esterases, does not depend on plasma pseudocholinesterase.

Superior pharmacological profile

Tracrium is eliminated independently of kidney and liver function or pseudocholinesterase levels, making it an excellent choice of SMR for a large variety of patients, even those with renal or hepatic impairment or abnormal pseudocholinesterase.


tcant

Tracrium is a highly potent muscle relaxant with a rapid onset of activity. Maintenance doses are required at intervals of minutes. Additional infusions are required at intervals minutes. After maintenance doses of Tracrium, there is less mechanical block for procedure. And because the duration of action is brief, there is less mechanical block for procedure.

In 1921

at the age of forty-two, Simon Rodia
began an unusual garden in his
backyard in the Watts section of Los Angeles. Over the next thirty-three
years it grew. An Italian immigrant
with no formal education, Rodia
brought forth a fantastic lattice by a
spires and arches surrounded by a
six-foot scalloped wall meticulously
inlaid with fragments of china and
glass. He worked alone, without
plans, using the towers themselves
as scaffolding. Abruptly, in 1954, he
abandoned the project, deeded his
land over to a neighbor and disapp-
peared from Los Angeles.

The Watts Towers

have since been placed on the list of
national monuments and have been
called the most important piece of
architecture in California. They are
visited each year by thousands of
people.

Five years after he vanished from
Los Angeles, Rodia was found living
in a boarding house outside San
Francisco. Of his creation, he would
only say, "I had in mind to do
something big and I did." He died in
1965 without ever returning to Los
Angeles.

(a) The towers are constructed of
steel reinforcing rod and wire mesh,
covered with waterproof cement.
(b) The tallest tower is nearly 100
feet high. In a test arranged to deter-
mine its structural integrity and safe-
ty, it was found capable of withstanding
a pull of 10,000 pounds, the
Equivalent of a seventy mile per
hour wind.

See Inside

for information on another unique
structure of special interest to you.
...with a unique mode of degradation

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Predictable, controllable & flexible

Tracrium is a non-cumulative surgical muscle relaxant with an intermediate duration of action. Both of these benefits derive from the fact that the elimination of Tracrium is rapid.

An initial dose of 0.4 to 0.5 mg/kg, under balanced anesthesia, provides 20-35 minutes of surgical muscle relaxation. Maintenance doses of 0.1 mg/kg provide additional intervals of relaxation of 15-25 minutes. After determination of the first maintenance dose interval, subsequent equipotent maintenance doses will be required at virtually the same time intervals. Tracrium is predictable. It is an ideal agent for procedures lasting from 30-90 minutes. And because Tracrium is non-cumulative, there is less potential for prolonged mechanical ventilation following a surgical procedure.

Well tolerated

Tracrium produces few cardiovascular effects, with minimal risk of histamine release, in the recommended dose range. In clinical trial, the overall incidence rate for clinically important adverse reactions was 0.8%.

Convenient

Tracrium is supplied as a ready-to-use solution, 10 mg atracurium besylate per ml. No pre-mixing required.
**Tracrium® Injection (atracurium besylate)**

A unique structure

Tracrium® Injection (atracurium besylate) is an intermediate-duration, nondepolarizing surgical muscle relaxant.

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### Table: Nondepolarizing vs. Depolarizing Relaxants

<table>
<thead>
<tr>
<th></th>
<th>Nondepolarizing</th>
<th>Depolarizing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vecuronium Norcuron®</td>
<td>Metocurine Metubine®</td>
</tr>
<tr>
<td>t-15.0 minutes</td>
<td>80.5 ± 6.9 minutes †</td>
<td>25-40 minutes †</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Slight</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>None</td>
<td>Significant</td>
<td>None</td>
</tr>
<tr>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Ready-to-use Solution</td>
<td>Yes—Ready-to-use Solution</td>
<td>No—Powder; Needs Mixing</td>
</tr>
</tbody>
</table>

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†Savarese JL. New muscle relaxants. Read before the American Society of Anesthesiologists Annual Meeting. Annual Refresher Course Lectures, Atlanta, GA, October 8-12, 1983.

*Phase II block is a nondepolarizing block that can occur after repeated or continued administration of succinylcholine.

**Slight increase in pulse rate is frequently noted. Package Insert for Pavulon (pancuronium).
# Compare Tracrium® Injection (atracurium besylate) to other surgical muscle relaxants

## Comparison table for surgical muscle relaxants

<table>
<thead>
<tr>
<th></th>
<th>Nondepolarizing</th>
<th>Depolarizing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>atracurium besylate Tracrium</td>
<td>pancuronium Pavulon®</td>
</tr>
<tr>
<td>1. Intubation</td>
<td>2-2.5 minutes</td>
<td>4 minutes</td>
</tr>
<tr>
<td>2. Recovery*</td>
<td>30-45 minutes</td>
<td>99.3 ± 15.0 minutes†</td>
</tr>
<tr>
<td>3. Cumulative?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>4. Fasciculations?</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>5. Reversible?</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>When?</td>
<td>20-35 min. after initial dose</td>
<td>45-60 min. after initial dose</td>
</tr>
<tr>
<td>6. Metabolized/</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Eliminated by kidney/liver?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Risk of histamine release</td>
<td>No to little</td>
<td>None</td>
</tr>
<tr>
<td>8. Cardiovascular effects</td>
<td>Few</td>
<td>Frequent**</td>
</tr>
<tr>
<td>9. Convenient to use?</td>
<td>Yes—Ready-to-use Solution</td>
<td>Yes—Ready-to-use Solution</td>
</tr>
</tbody>
</table>

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*From injection to 25% recovery of twitch following an intubation dose.
§Package insert for NORCURON (vecuronium).

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**Photographs by Seymour Rezen**

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**TRACRIUM® INJECTION** (atracurium besylate)

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Burroughs Wellcome Co., Research Triangle Park, NC 27709

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