

Species

american holly leaf
Angler fish
Arctium minus
Arion subfuscus
Beech leaves
black locust leaf
Bombardier beetle
box fish
Brazilian giant horsetail
Brittlestar
callophrys rubi
Cephalotes atratus
Cicada
clytolaema ruricauda (red gorget)
Cockroach
Colias erate
Coral
Cow antler
Cow bone
Desmodium gyrans
dolphin skin
Dung beetle
Dutch rush
Dutchman pipe
Euplectella
gold beetle p. Resplendens
Gymnarchus niloticus
Hedgehog spines
heliangelus viola (blue gorget)
Helix aspersa
hercules beetle dynastes hercules
Hornbeam leaves
Hummingbird hawk moth
Insect cuticle
iridagonum quadripunctum
javanese cucumber fruit
Jellyfish
leontodon flower
Lily leaf
Locust ovipositor
Lotus
loxandrus lucidulus
Marine alage Macrocystis
marine worm Arenicola
Mimosa Pudica
Morpho didius
morpho menelaus
Morpho rheteno
mutila europaea
natural fibers
necyria duellona
nephila clavipes
octopus aculeatus
octopus marginatus

Application

reduce aerodynamics drag
deployable structures
adhesion,velcro
adhesion
deployable structures, folding
reduce aerodynamics drag
mass ejector devices
reduce aerodynamics drag
support structures
photonics, microlens
photonics, structural colors
wingless flying
aerofoils,sensor systems
photonics, structural colors
walking robotics
superhydrophobic surfaces,self-cleaning
implant materials
ceramic composite nanostructures
ceramic composite nanostructures
hydraulic mechanism
reduce hydrodynamic trail
composite nanostructures,non-smooth surfaces
support structures
support structures
photonics, fiber optics
photonics, structural colors
underwater propulsion
shock absorbers
photonics, structural colors
adhesion
photonics, structural colors
deployable structures,folding
deployable structures
fibrous nanocomposite
photonics, structural colors
flying
underwater propulsion, valveless chambers
hydraulic mechanism
superhydrophobic surfaces,support structures
mini-excavator
superhydrophobic surfaces,self-cleaning
photonics, structural colors
reduce hydrodynamic trail
positive displacement pumps
hydraulic mechanism
photonics
photonics, structural colors
photonics
photonics, structural colors
green composites (cotton, jute, sisal, bamboo)
photonics, structural colors
strong fibers
soft robotics mechanism
soft robotics mechanism

Ophiocoma wendtii	photonics
ornithoptera priamus	photonics, structural colors
Pangolin squama	composite nanostructures,non-smooth surfaces
papilio daedalus	photonics, structural colors
peacock feathers	photonics, structural colors
Pinctada	ceramic composite nanostructures
Pine cone seeds	Intelligent clothing
prairie dog burrow	venturi aspirator
Red Abalone	ceramic composite nanostructures
Salp	underwater propulsion
Sapindus Saponaria	Biodegradable detergent
Satyridae	photonics
Sea Mouse	photonics, fiber optics
Sea slug	perform colonoscopies
Seed Shrimp	photonics
Setcreasea	superhydrophobic surfaces,self-cleaning
shark skin	reduce hydrodynamic trail
social insects	Networking, cluster systems and polymorphism, swarm(ants, bees,termites, etc)
spider threads	strong fibers
Tokay gecko	adhesion
trichoplusia orichalcea	photonics, structural colors
Trifolium pratense	hydraulic mechanism
tulip poplar leaf	reduce aerodynamics drag
Vanessa indica	superhydrophobic surfaces,self-cleaning
Venus fly trap	hydraulic mechanism
Wasp ovipositors	mini-drills
Xanthid crab	photonics, structural colors

BioMaterial, Molecule, Virus, Bacteria

Acetobacter xylinum
amphiphilic block copolymers

ATP synthase rotors
bacterial flagella
bacteriorhodopsin

bioglass
bone
calixarenes
collagen
cyclodextrines
cyclophanes
Cytoskeletal motors
chlorosomes algae
DNA
double hydrophilic block copolymers
dynein
elastin
electro-active gels
GEPs
kinesin
liquid crystals
M13 bacteriophage

magnetotactic bacteria
myosin
nacre
PEO-PPO-PEO
pilin proteins
protein from CCM2177 Bacillus sphaericus
silk
spiro-oxazines
TMV
virions

Application

construction worker on the nanoscale
copolymers ceramic composites, biomimetic membranes
nanorotors
rotary motor
seawater desalination, converting solar energy into electricity, optical molecular data storage
stimulate tissue biomineralization
self-assembled structures
specific molecular recognition
self-assembled structures
specific molecular recognition
specific molecular recognition
nano transport systems
light-harvesting capability
self-assembled structures
colloid stabilization, crystal growth modification
molecular motors
repair soft tissues
artificial muscles
binding a host of materials, modify crystal growth
molecular motors
self-assembled structures, photonics
arrange inorganic nanocrystals into an ordered superstructures.
magnetic nanoparticles
molecular motors
self-assembled structures
multiscale porous materials
self-assemble nanotubes
artificial arrays
strong fibers
Photochromic materials
template magnetic nanowires and nanotubes
microreactors for moulding inorganic nanoparticles