

## Order Hexactinosida Schrammen, 1903

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Recent Hexactinosida Schrammen (Hexactinellida, Hexasterophora) contains seven families and 36 valid placed genera, plus five unplaced genera here treated and summarized as Hexactinosida *incertae sedis*. The group is characterized by formation of a rigid dictyonal framework of simple (non-lychniscid) hexactins either by fusion of rays of adjacent dictyonalia arranged side-by-side, or by point of contact fusion of ray tips to centra, or to ray tips of adjacent dictyonalia. The length of rays is strictly limited and thus determines length of mesh sides, usually 150–400  $\mu\text{m}$  but may be extended to over 1 mm in some species; dictyonal rays are not extended indefinitely as is the pattern in Aulocalycoida. Body form and channelization are highly variable, including diplorhyses, diarthyses, schizorhyses, amararhyses and extradictyonal epirhyses, with or without aporhyses. Dictyonal framework patterns include those previously characterized as farreoid and euretoid, but some as yet uncharacterized patterns are formed by members presently included in Hexactinosida.

**Keywords:** Porifera; Hexactinellida; Hexactinosida; Aphrocallistidae; Craticulariidae; Cribrospongiidae; Dactylocalycidae; Euretidae; Farreidae; Tretodictyidae.

### DEFINITION, DIAGNOSIS, SCOPE

#### Synonymy

Hexactinosa Schrammen, 1903. Hexactinosida Schrammen, 1912 (emended).

#### Definition

Basiphytous Hexasterophora in which a rigid dictyonal framework is formed by fusion of simple hexactins; dictyonalia fuse either along rays lying side-by-side, or at junction points of ray tips to nodes of other dictyonalia, or ray tips to tips of other dictyonal rays; dictyonal ray length is limited to length of mesh sides.

#### Diagnosis

Body form is typically a system of branching and anastomosing tubes with terminal oscula or a cup/funnel form, with or without lateral diverticula, but includes simple cylinder forms with or without lateral oscula, and blade forms without oscula; channelization may be absent or include simple extradictyonal epirhyses, with or without extradictyonal aporhyses, amararhyses, schizorhyses,

diplorhyses or diarthyses; dictyonal frameworks are rigid and brittle, even to growing margins; they are typically euretoid or farreoid in structure, but other patterns not yet formally characterized (e.g., polyradial lattices) also occur; dermalia and atrialia, when present, are usually pentactins but hexactins, with or without pinular specialization of the distal ray, also occur; scepstrules may be absent or consist of narrow-headed scopules, aspidoscopules, clavules, sarules or lonchioles; uncinates may be robust, with well-formed barbs and brackets, or small, thin forms without detectable barbs, or may be absent; large to medium parenchymal spicules other than uncinates are rare but occur occasionally as spiny oxyhexactins; microscleres include regular or irregular hexactins, hexasters or hemihexasters, usually with oxy- or disco-terminal tips, but onycho- and tylo-tip forms are present in some forms; small oxyhexactins are commonly attached to the dictyonal framework, especially in older basal regions.

#### Scope

Seven families: Aphrocallistidae Gray, 1867a, Craticulariidae Rauff, 1893, Cribrospongiidae Roemer, 1864, Dactylocalycidae Gray, 1867a, Euretidae Zittel, 1877, Farreidae Gray, 1872a, Tretodictyidae Schulze, 1886.

### KEY TO FAMILIES

- (1) With diarthyses ..... **Aphrocallistidae**  
Without diarthyses ..... 2
- (2) With diplorhyses through primary framework ..... 3  
Without diplorhyses through primary framework ..... 4
- (3) Aporhyses in quadrux ..... **Craticulariidae**  
Aporhyses in quincunx ..... **Cribrospongiidae**
- (4) With schizorhyses ..... **Tretodictyidae**  
Without schizorhyses ..... 5
- (5) With scepstrules as clavules, sarules, lonchioles or aspidoscopules ..... **Farreidae**  
Without clavules, sarules, lonchioles or aspidoscopules ..... 6
- (6) With euretoid framework; dictyonal rays fused in parallel ..... **Euretidae**  
Without euretoid framework; dictyonal rays fused tip-to-node, forming polyradial nodes, or tip-to-tip, forming false nodes  
..... **Dactylocalycidae**